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SCIENTIFIC AND CULTURAL ORGANIZATION

**INFORMATION AND COMMUNICATION
TECHNOLOGIES
IN DISTANCE EDUCATION**

SPECIALIZED TRAINING COURSE

UNESCO INSTITUTE
FOR INFORMATION TECHNOLOGIES IN EDUCATION



Information and Communication Technologies in Distance Education

Specialized Training Course

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Preface

Dr Michael Moore

Introduction to the Course

Welcome to this course “Information and Communication Technologies in Distance Education.”

This course has been prepared in response to the many major changes that are occurring in the developing world in the way education and training programs are produced and delivered, how educational institutions are organized, and how educational resources are distributed. The immediate driver of this revolution is the application of information and communication technologies (ICTs) in teaching and as resources for learning, in particular the transmission of information via computers and telecommunications over electronic networks using the Internet and rendered easily accessible through the World Wide Web. Economics is also driving the revolution. At the same time as the cost of electronically processing, storing and transmitting information has been falling, the cost of conventional education and training has been rising to levels that are particularly unsustainable in emerging economies. Further, the need for continuing education for employability in the “information age” has led to an increase in demand for new and more flexible ways of accessing knowledge. Finally, a growing number of educators, people who have traditionally regarded themselves first and foremost as owners and dispensers of information, are shifting both their self-concept and their practice, placing greater emphasis on their role and their expertise as facilitators of learning. In this they are supported by research showing the greater effectiveness of learner-centered pedagogy, and even belated acceptance of research showing the effectiveness of distance learning relative to learning in conventional environments.

In response to this changing context, UNESCO has commissioned this course “Information and Communications Technologies in Distance Education” as part of its policy of encouraging and assisting the development of ICTs in distance education in developing and emerging economies. The course is specifically related to the informative document “Distance Education for the Information Society: Policies, Pedagogy and Professional Development” produced under IITE’s authority by a team chaired by Mr. Nick Farnes (UNESCO 2001). As pointed out in that document, the report of the UNESCO International Commission on Education for the 21st century *Learning: The Treasure Within* (1997) suggested that the most promising area for the use of communication technologies is in the development of distance education. The UNESCO World Conference on Higher Education (Paris, 1998) reiterated the view, saying: “distance learning and new information and communication technologies secure a wider access to higher education, to new social groups in particular. It is important to exploit their potential in education”.

The course has been prepared by an international team, most of whom are from developing countries, and all of whom have extensive experience of education in such environments. We have tried to prepare a course that on the one hand will help you become more informed about the application of new technologies in distance education, but on the other keeps a sense of realism with regard to what can be undertaken in less developed countries where the technological infrastructure and human resources may be very limited. This is a very exciting time to be involved in distance education. As a force contributing to social and economic development, distance education has historically been regarded as an unimportant and marginal activity. Recently this has started to change, largely as a result of a growing interest among educators in the use of the technologies that distribute information and facilitate interpersonal communications, that is, Information and Communications Technologies.

Changing Views about the Educational Environment

The introduction of ICTs into distance education is re-enforcing another significant trend in education. This is the re-invention by a number of scholars of the basic concept of education seen as an event that takes place in a single geographic location. Contrasted to the idea of education as a single process within such a closed and contained environment, under the new concept education is seen as an “open” system.

It is the explosion of information and increased access to it through the new ICTs that is accelerating the trend toward deconstruction of the educational processes, the “unbundling” of the functions performed by traditional educational institutions.

Quotation from Noam (1995), “In the past, people came to the information, and the information was at the university. In the future, the information will come to the people, wherever they are”. **To this should be added, in the past people also came to the teaching while in the future, the teaching also will come to the people, wherever they are.**

This is the context for the course of study you are about to begin. Before you start, I would like to say just a few words about how the course is constructed and about the assumptions we are making with respect to how you will study it.

What this course is about and what you can expect to learn.

The course aims to inform you about each of the following:

- I. the concept of distance education (DE), its history and the role of Information and Communication Technologies (ICTs) in this particular form of education;
- II. achieving the core functions of the teaching-learning transaction in DE and the corresponding organizational, social, and technological implications;
- III. overall system, program, and course design procedures in using ICTs;
- IV. teaching principles with special attention to using ICTs;
- V. what is known about learning and the special needs of learners and corresponding implications for ICTs in distance education;
- VI. principal policy issues at institutional and national levels.

Who this course is for.

We have designed this course for those of you who are either:

- I. Teacher trainers, either pre-service or in-service, and instructional guidance specialists.
- II. Trainers in various settings such as vocational development institutions.
- III. Schoolteachers who are studying at home or at work as independent students, or who are studying in virtual groups organized by a distance learning institution.
- IV. Similar audiences taking courses in face-to-face workshops delivered in UNESCO Institute for Information Technologies in Education (IITE) settings.

What previous knowledge are we assuming?

We have designed the course on the assumption that you have some prior training and experience in conventional face-to-face classroom teaching environments.

How is the course organized and how much study time is needed?

We are assuming you will give at least 36 hours of study time to this course.

The course is organized in six modules and each module has two study units requiring about three hours each.

Each of the six modules contains a statement of objectives, a textual narrative, and self-test activities (which instructors in workshops may wish to use as an assessment tool) presented in the form of a learner Study Guide.

What resources will you need?

Each trainee will require this Study Guide and the Book of Readings (which contains both required and

optional readings). The course is designed for learners to study independently but some of you may be studying in a class, in which case your trainer may choose, for example, to substitute group discussions for the written assignments.

As you proceed through this course you will find a number of readings listed at the beginning of each Module. The required readings are supplied with the course materials. At appropriate points in each Module you will be instructed which readings to work through. It is essential that you read them as they form an integral part of the learning materials.

In addition, the course is complemented by a bibliography of supplemental (optional) readings (including Websites) and a course glossary. Should you encounter any unfamiliar words or concepts, please remember to use this glossary before you look elsewhere. Supplementary readings are intended for you to use in your own time, outside the 36 hours minimum of course time, if you choose to study distance education more deeply.

Evaluation procedure

Each module contains several assignments, many of which are in the form of a series of questions. The primary intent of the assignments is for you to be able to test yourself. If you happen to be in an educational workshop, your trainers may use the assignments to evaluate your performance. If you are an independent distant learner, you may be asked to submit your assignments by mail or Internet to the institution that has organized your course.

Acknowledgements

This is just a brief summary of the context for the course you are about to begin. It was commissioned by the UNESCO Institute for Information Technologies in Education (IITE) and prepared by an international team of specialists in the study and practice of distance education. Members of the team were Wayne Mackintosh, (South Africa), Honoratha Mushi (Tanzania), Linda Black, (USA), Creso Sa (Brazil), Edward Thompson (USA), John Norrie (Nigeria), and R. Kavena (Namibia).

I hope you will find the course that follows both helpful and also personally satisfying, and wish you every success.

Michael G. Moore, Ph.D.
Course team Chairman.

MODULE 1

The Concept of Distance Education, Its Evolution, and the Role of Information and Communications Technologies (ICTs)

Goal

For you to develop an understanding of the concept of distance education and its evolution, paying special attention to the influence of ICTs.

Objectives

After studying Module One, you will be able to:

- Compose your own definition of distance education.
- Evaluate Keegan's (1980) definition of distance education, relating what you think is his most important message.
- Having read some scholarly definitions, write a short paragraph explaining how you might revise your definition.
- Write a paragraph (about 50 words) explaining whether changing technologies will necessitate changes in the definition of distance education.
- List examples of how face-to-face and distance education are likely to change as a result of emerging technologies.
- Explain in about 200 words whether it is necessary or not to adapt or change Keegan's five defining characteristics of DE in response to the emerging technologies, indicating which components (if any) need to be changed and how you would change them.
- Critically analyze the question "Can ICTs enhance the quality of open learning and distance education?"
- With respect to your own local setting, write a short essay that describes distance education as you might apply it. If distance education is already applied in your setting, write a short essay to describe how you might change the way in which it is applied.

Introduction to Module One

In the first module of our course we are going to introduce some of the different perspectives in defining distance education and some ideas about the evolution of distance education, and its relationship to the evolution of ICTs.

This module is divided into two units. The first unit describes the concept of distance education and the second unit discusses the evolution of distance education.

The module contains activities designed to help you to think about and interact with the content, the instructor, and other learners. The activities can also be used for assessment (and grading by your instructor).

To enrich your learning experience and to incorporate a variety of diverse views and opinions about distance education, we have provided print articles related to this module of study. We urge you read the articles. They are important, since they highlight basic issues relating to the module and will help you to respond to the assignment questions provided.

Below is a list of the readings. We have identified the unit of study within each module of the course that the reading best supports. We will prompt you at appropriate points in the text when you should read the relevant paper. The list is provided here for your convenience and, importantly, to provide you a preview of the contents of the module.

Module 1 Readings:

Unit 1 “The Concept of Distance Education: What Research Says”

Reading 1. Keegan, D.J. 1980. On Defining Distance Education. *Distance Education*, 1(1), 13–26.

Purpose: This is an early publication in which Keegan analyzes four definitions of distance education (DE). Based on this analysis he proposes that distance education can be differentiated according to six components. Keegan compiled this definition before the advent of new digital ICTs. As you read this article, think about whether the fundamentals of DE have changed over time.

Reading 2. Barker, B. O., Frisbie, A. G., & Patrick, K.R. (1995). Broadening the Definition of Distance Education in Light of the New Technologies. In M. G. Moore & M. A. Koble (Eds.), *Video-Based Telecommunications in Distance Education* (pp. 1–10). The American Center for the Study of Distance Education Reading No. 4. USA: The Pennsylvania State University.

Purpose: Read this article to learn about defining distance education in the traditional sense and in light of extending the definition to cover newer telecommunications technologies (in this article ICTs are broadcast telecommunications lessons sent to receiving sites in distant locations NOT Internet/World Wide Web–based distance education). Though the context is the U.S.A., the article serves well the purpose of introducing you to the reasons for extending a definition of DE to cover pre–Internet/World Wide Web (WWW)–based ICTs. As you read, think how your own context compares.

Unit 2 “The Evolution of Distance Education”

Reading 1. Dede, C. (1996). The Evolution of Distance Education: Emerging Technologies and Distributed Learning. *The American Journal of Distance Education*, 10 (2), 4–36.

Purpose: Read this article to learn how new ICTs may reshape both traditional face–to–face education and distance education. This article extends the thinking regarding DE’s evolution to cover the WWW and its hypertext/hyperlinks to information and modern multimedia–based features such as virtual reality. As you read, think how your own context compares.

Reading 2. Kirkwood, A. (1998). New Media Mania: Can Information Technologies Enhance the Quality of Open and Distance Learning? *Distance Education*, 19 (2), 228–241.

Purpose: Read this article to get an idea of whether ICTs improve the quality of DE. As you read, consider in your own context how decisions are made regarding the use of technology.

UNIT 1

“The Concept of Distance Education: What Research Says”

Before reading further, we would like you to take your first steps in developing your own definition for Distance Education (DE), which you should write down as your answer for Assignment 1. Do not worry about developing the “perfect” definition on your first attempt, because you will get a chance to do this later.

Assignment 1

At this point we ask that you simply write down your thoughts concerning the questions below.

Think about a distance education (DE) institution or course that you are familiar with. If you have no prior experience with DE, read one of the following case studies in Module 2: British Open University (BOU, more correctly referred to as the Open University of the United Kingdom, that is, the OUUK); Open University of Tanzania (OUT); or the University of South Africa (UNISA) to get some beginning information on DE operations. Now think about the similarities and differences between face-to-face education and DE. Use the following questions to guide your thinking and jot down your thoughts to each of these questions before proceeding.

- *Should a definition of DE allow for opportunities of face-to-face learning opportunities within the DE system?*
- *Is separation of the learners from the institution an essential component of a DE definition (that is where learners learn at a different **place** from the physical geographical location of the institution)?*
- *Before education can be classified as DE, is it essential that the learning is separated from the teaching in terms of **time** and **place** (that is, must learning always happen at a different **time** and at a different **place** when compared to the teaching before it can be classified as DE)?*
- *Is the provision of two-way communication an essential component of DE, or can DE exist without the provision of two-way communication between teacher and student?*
- *Does DE have to be affiliated with a specific institution before it qualifies as DE?*

Now let us examine a number of definitions and descriptions of distance education. As you read and think about these, you may want to refine your own definition.

Assignment 2

Read the following article in your Book of Readings – Keegan, D.J. 1980. On Defining Distance Education. Distance Education. 1(1), 13-26. – and then answer the questions which follow.

- *Keegan discusses four definitions in this widely quoted article. Make your own assessment of each definition on the first page of the article.*
- *In about 50 words, write a short paragraph stating what you think is the most important message of the article.*
- *Write a short paragraph explaining whether you would like to change any aspects of your original description in Assignment 1 above.*

As you can see, distance education is certainly not a new phenomenon, and we deliberately chose an article which was published long before the advent of the Internet revolution. This is important, because with all the excitement and potential that new technologies offer, it is easy to get confused between what distance education itself and the technology it uses.

Below are some of the more recent efforts to define distance education written since Keegan's synthesis of the pioneers' concepts. As you read these, think how they are alike and how they are different from one another.

Selected Definitions from Scholarly Distance Education Literature

Here is a definition that seems to emphasize both communication and technology.

"Distance education implies that the majority of educational communication between (among) teacher and student(s) occurs non-contiguously (at different times and at separate places – separating the instructor-tutor from the learner). It must involve two-way communication between (among) teacher and student(s) for the purpose of facilitating and supporting the educational process. It uses technology to mediate the necessary two-way communication" (Garrison & Shale, 1987, p. 11).

Some authors have defined DE from the perspective of dominant technologies:

"Telecommunications-based distance education approaches are an extension beyond the limits of correspondence study. The teaching-learning experience for both instructor and student(s) occurs simultaneously – it is contiguous (same time) in time. When an audio and/or video communication link is employed, the opportunity for live teacher-student exchanges in real time is possible, thereby permitting immediate response to student inquiries and comments. Much like a traditional classroom setting, students can seek on-the-spot clarification from the speaker" (Barker *et al*, 1989, p. 25).

Elsewhere, in a book on ICTs in distance education, the authors say the term distance education refers to:

"... teaching and learning situations in which the instructor and the learner or learners are geographically separated, and therefore, rely on electronic devices and print materials for instructional delivery. Distance education includes distance teaching – the instructor's role in the process – and distance learning – the student's role in the process" (Portway & Lane, 1994, p. 195).

Clearly, the concept "distance education" is concerned with a form of educational delivery, where the acts of teaching and learning are separated in time and space, and technology plays a significant supporting role in enabling this form of delivery. Although DE certainly depends on communication technology it is much more than just technology. Rather it is a total DELIVERY system; it can be defined as:

"... planned learning that normally occurs in a different place from teaching and as a result requires **special** techniques of course design, **special** instructional techniques, **special** methods of communication by electronic and other technology, as well as **special** organizational and administrative arrangements" (Moore & Kearsley, 1996, p. 2, the bold type represents our emphasis and not the authors').

You will recall from Keegan's article that in distance education systems, the *institution* teaches, whereas in traditional campus-based education *an individual* teaches and "[t]his is a radical difference" (Keegan 1980, p. 19). In order for an institution to teach, you require a total system that can accommodate and organize all the different resources of the institution.

Assignment 3

Clearly, there is a strong link between distance education and ICTs. Technology is changing at an accelerated pace and we need to consider, whether adaptations and refinements in the definition of distance are required.

Read in your Book of Readings – Barker, B. O., Frisbie, A. G., & Patrick, K.R. (1995). Broadening the Definition of Distance Education in Light of the New Technologies. In M. G. Moore & M. A. Koble (Eds.), Video-Based Telecommunications in Distance Education (pp. 1-10). The American Center for the Study of Distance Education Reading No. 4. USA: The Pennsylvania State University – then answer the following question:

- Write a paragraph in 50 words explaining in your opinion, whether changing technologies will necessitate changes in the definition of distance education.

The Philosophy Underpinning the Evolution of Distance Education

Distance education has developed in parallel with the evolution of technology. However, there is a far more important driving force that has directed the evolution of distance education. We are referring specifically to the vision that **access** to all levels of education **should be widened** and that distance education is a significant force in achieving that vision.

Access to Education Could Be “Open”

The ideal of opening opportunity for education is an old one and has emerged in different ways in different countries, but the particular connection to distance education, that can be documented, can be traced directly to the American visionary, Charles Wedemeyer. Wedemeyer promoted a simple but powerful belief that communication technologies make it possible to meet every individual’s fundamental right to learn, in other words, access to education should be and **could be “open.”**

Wedemeyer realized that conventional face-to-face instruction would not be able to attain this vision, because it was not possible for everybody to attend classes at specific places and at specific times. For example, adults who had to leave school and begin working, would not be able to attend conventional universities that taught at specific places at specific times. Wedemeyer realized that his vision could not be achieved unless the barriers of time and space associated with face-to-face teaching could be broken, hence his passion and extensive research to promote and refine distance education. In the early days, the concept “distance education” was not widely used, but Wedemeyer (1978) called it “independent study,” which he defined as follows:

“Independent study encompasses several teaching-learning arrangements in which teachers and learners carry out their essential tasks and responsibilities apart from one another, communicating in a variety of ways” (p. 2114).

“Open Learning”

Beginning with Wedemeyer, opening access to education is the core driving force underpinning the evolution of distance education and this has evolved into a philosophy called “open learning.”

The concept “open learning” refers to the aim of opening up education. Lewis (1997) defines open learning as follows:

“Open learning has two main thrusts: enhanced student access; and the development of student autonomy. These are achieved through widening student choice over aspects of the learning process. Choice may be widened over the time and place of study ... (and) over the curriculum itself, once access has been gained: choices, for example, of content, pace, method media and assessment. These curriculum choices develop great autonomy: through the structured and supported exercise of choice in their learning, students work more independently” (p. 3).

It is not coincidental that many distance education institutions call themselves “open” universities, for example, the Open University of Hong Kong, the Open University of Tanzania and the Open University of Sri Lanka. However, you should not confuse the concept of “open learning” with distance education.

Open learning is a philosophy aimed at widening access and personal choice in learning, in contrast, "distance education" refers to the form of delivery. It is true that higher levels of access and choice can be achieved through distance education methods, but there are also distance education systems that do not necessarily promote the vision of open learning. It is worth remembering though that both concepts originated in Wedemeyer's concept of "independent learning". It is also worth knowing that Wedemeyer was the principal adviser to the British in setting up the first "Open University" in 1969.

Finally, when considering the advances in digital ICTs, it is likely that the vision of "open" learning will continue to influence the evolution of distance education. For instance, it will become easier to widen access to education through the implementation of a wider range of technologies and the convergence between telecommunications and computing will facilitate greater interoperability among different types of educational institutions, different sources of content, different locations of instructors and learner support. This should become more apparent as we proceed to look at teaching and learning later in the course.

Summary of the Defining Features of Distance Education

Having studied a number of definitions, let us return to Keegan's (1980) original six defining characteristics of distance education. They are:

- 1) The separation of the acts of teaching and learning in time and/or space differentiates distance education from face-to-face education.
- 2) The **normal** environment for study is the student's home or workplace and **normally** the student is alone. This does not rule out the possibility of learners occasionally meeting for practical activities or accessing technology that is not available at their local settings.
- 3) Studying alone does not qualify as a system of distance learning unless it is institutionalized, in other words, the influence of an educational organization regarding the planning, development and delivery of teaching is essential. Institutionalization enhances organizational procedures including management, and administrative aspects.
- 4) Use of communication technology for delivery of instruction and provision of administrative services is another distinct qualification of distance education. The technology brings the learning content and learning community to the learners.
- 5) There should be two-way communication (however fast or slow) in order to ensure interaction and dialogue.
- 6) The sixth component of Keegan's definition defines distance education as the application of principles of industrialization to teaching. This is a theoretical position associated with the German scholar Otto Peters. Industrialization is in many ways similar to the 'systems principles' referred to in the discussion about definitions earlier.

We need to consider how and to what extent Keegan's original definition, that is, the characteristics listed above, are still valid today in the light of emerging technologies, or whether adaptations will be necessary.

In the next unit of Module 1, we will examine how distance education has evolved from the perspective of changing technologies.

Unit Closing

We hope you have come to understand that as distance education has evolved a number of things have happened. Among them are these:

- a) The way the field has been conceptualized and practiced has changed but certain characteristics remain stable.
- b) There are several respected scholarly conceptions of distance education, with some emphasizing curriculum planning or the nature of organization and others emphasizing the nature of communication or technology.

To summarize in the first unit of Module 1 you have:

- thought about how you might define distance education and about what you consider to be the main distinguishing characteristics of distance education,
- encountered different scholarly definitions of distance education,
- thought about how the vision of “open” learning has directed the evolution of distance education and how this vision likely will continue to influence the development of distance education.

Now you are ready to study how distance education has developed specifically from the perspective of the evolution of ICTs. So, please, move on to Unit 2 of Module 1.

A number of scholars, such as Garrison (1985) and Nipper (1989) (both as cited in the Distance Education for the Information Society: Policies, Pedagogy, and Professional Development: Analytical Survey by the UNESCO Institute for Information Technologies in Education, that is, IITE, 2000, p. 9), have described the history of distance education by delineating its evolutionary stages as distance education **generations**.

Evolution has neither occurred overnight nor totally. The evolutionary process has taken place gradually and frequently each of the emerging educational delivery technologies has been incorporated into different distance education systems, resulting in a total multimedia-based distance educational system comprised of various generations of distance technology and media. In other words, the different technologies and media have complemented and supported each other, rather than replaced existing ones.

As we look forward we can expect the same trend to continue. In particular, should the World Wide Web (WWW) become the dominant delivery vehicle in distance education, it is difficult to see how it will be able to stand alone. Instead the Web and the Internet might be complemented by other multimedia such as print materials, CD-ROMS containing varied media, telecommunicated audio- and video-clips, and the Web’s own hypertext/hypermedia capabilities.

First Generation Distance Education

The information and communications technology of first generation distance education was written and printed material distributed through the postal system which developed in every country from the end of the nineteenth century onwards. Known as correspondence courses, students generally were provided with study guides and textbooks and sometimes with supplemental reading lists. In these courses students were expected to respond to questions that distant teachers then read and assessed.

Though correspondence study did not disappear, but in fact continued to grow in most countries, after the radio was invented in the 1920s and the TV in the 1950s, these “new” information and communication technologies were applied to distance education in the form of radio-based study talks and TV-led video-based courses. Sometimes print and local study groups were included.

Second Generation Distance Education

The setting up of the Open University in the Great Britain in 1969 marks the beginning of the second generation of distance education. Though the dominant technology remained print and the medium text, this was the first time an integrated multiple-media approach was applied on a large scale. The Open University was known for developing large quantities of high quality materials designed especially for distance education. Both one-way (from university to students in the form of print, broadcasts, and audiotapes) and two-way communications (between tutors and students through correspondence tutoring, face-to-face tutorials and short residential courses and in more recent years by telephone, video and computer conferencing) were applied.

Third Generation Distance Education

The third generation of distance education uses ICTs that are interactive, electronic, and computer-based as its basis for distributing information and facilitating communication between learners and teachers, learners and learners. Here ICTs provide for two-way communications that are either synchronous (‘at the same time’ as in videoconferencing or audio-conferencing) or asynchronous (‘not at the same time’ as in electronic mail or most computer-based discussion forums). These technologies are sometimes added to courses characteristic of earlier generations, but they can also be used by themselves.

Although computer-aided instruction was already in place in some institutions by the 1980s, only after the introduction of the World Wide Web (WWW) did computers and telecommunication systems have a

significant teaching-learning function in distance education. With the introduction of the WWW in 1993, web-based distance education and training have grown tremendously. A primary reason for this is the Web’s ability to facilitate interaction and interactivity through networking. This facilitates faster communication and interactivity between learners and instructors, hence representing an improvement from former generations of distance education. In fact, now a high level of interactivity is even possible among learners as well as between learners and instructors. (Note: we often use the terms “instructor” and “teacher” interchangeably, though the former tends to be most commonly used in training programs and the latter in schools).

Assignment 1

To think further about the potential development of distance education from the perspective of the evolution of technology, read the following article – Dede, C. (1996). The Evolution of Distance Education: Emerging Technologies and Distributed Learning. The American Journal of Distance Education, 10 (2), 4-36.

After this, construct a table with the following headings and then answer the questions provided.

Face-to-face education	Distance education

- *Under each heading list examples of how face-to-face and distance education is likely to change as a result of emerging technologies.*
- *In about 200 words, explain, whether it is necessary or not to adapt or change Keegan’s five defining characteristics of DE in response to the emerging technologies, indicating which components (if any) need to be changed and how you would change them.*
- *In about 50 words, compile your own definition for distance education.*

Future Generations of DE: Will ICTs Enhance the Quality of Distance Education?

Thus far in your study we hope you have progressed to the point where you can differentiate distance education from face-to-face forms of provision and where you can distinguish the various evolutionary stages of “open” learning and distance education and, perhaps, even speculate about the future. And just think, you have even created your own definition of distance education. This is good progress!

Moving forward, let us now think more about the so-called “media mania”, i.e the excitement about Internet-World Wide Web delivered hypertext and hypermedia, streaming video and audio, digital graphics and digital libraries, etc.

There is indeed much speculation about the potential of digital media-ICTs in distance education. Among the things much discussed is, whether new technologies will be able to enhance the **quality** of distance education.

In fact, in an article “*New Media Mania: Can Information and Communication Technology Enhance the Quality of Open and Distance Learning*” by Adrian Kirkwood (1998) that very question is debated.

Assignment 2

To assist you in generating creative ideas about whether ICTs can enhance the quality of open and distance education, read the following paper – Kirkwood, A. (1998). *New Media Mania: Can Information Technologies Enhance the Quality of Open and Distance Learning?* *Distance Education*, 19 (2), 228-241 – and then answer the questions that follow:

- On what should the innovations that are intended to enhance the quality of distance education be based?
- For practitioners the question should NOT be "Can ICTs enhance the quality of open learning and distance education"? instead, what should it be?

In preparation for our work and study in the rest of the course, you will need to think critically about what you have learned in Module 1 and how this can be applied to your own local context.

Assignment 3

- With respect to your own local setting, write a short essay that describes distance education as you **might** plan to apply it.
- If distance education is already applied in your setting, write a short essay to describe how you **might** change the way in which it is applied.

The idea of the above activity is to allow you the freedom to create your "dream" of what you would like to do with distance education in your specific situation. Though some things you say might not, in reality, be possible; we ask only for now that you dream. As you study this course and learn more, you will likely discover some constraints or barriers that can conceivably stand in the way of your dream.

As you continue with this course you will learn many new things about distance education and the application of ICTs. You will even learn some of those things that can stand in the way of your "dream." These will be discussed in the course as specific constraints or barriers. Undoubtedly you will need to amend and improve the thoughts you articulate here, but it is a worthwhile activity to think what you would like to see happen with respect to distance education in your own specific context, especially in light of applying new ICTs.

And remember, all the realities today were someone's dreams not so long ago!!

Unit Closing

Distance education has evolved from correspondence to broadcast radio, to teleconferencing, to mixed-multimedia, and currently to Web-Based or virtual learning. Some media technologies are primarily for one-way communication; they extend the possibilities for delivering prepared educational materials to learners. Other technologies support two-way communication and offer the potential for more interaction between all the humans involved.

In many settings today, distance education utilizes modern computing and telecommunications technologies generally referred to as Information Communication Technologies (ICTs). There is a lot of hyperbole and excitement about these modern ICTs and their potential application in education, especially "open" and distance education settings. We hope you have come to appreciate that the rationale for using ICTs in teaching and learning should focus on the educational purposes they serve. The point is that the focus should be on teaching and learning and NOT on the technology for technology's sake.

To summarize in the second unit of Module 1 you have:

- critically analyzed the question “Can ICTs enhance the quality of open learning and distance education?” and created an improved question;
- with respect to your own local setting, written a short essay that describes distance education as you plan to apply it. If distance education was already applied in your setting, you wrote about how you might change the way it is applied.

In Module 2 you will study the functions of distance teaching and corresponding organizational types. You will study the implications of applying ICTs and some developing society distance education initiatives. You will also study the concept of the perceived “Digital Divide.”

MODULE 2

The Functions of Distance Teaching and Corresponding Organizational Types: Implications for ICTs and Developing Society Distance Education Initiatives

Goal

For you to develop an understanding of how the functions of distance teaching are mediated through ICTs and how distance education can be structured into different types of organization. In order to do this, you will learn about a conceptual framework that you can use to analyze how different ICTs can be integrated into a variety of different DE situations — but, nonetheless, taking the opportunities and challenges of the “Digital Divide” into account.

Objectives

After studying Module Two, you will be able to:

- Describe ways in which the functions of distance teaching will differ from normal classroom teaching (if at all).
- Provide at least two asynchronous and two synchronous examples of how different technologies can be used to achieve each of the teaching functions in a distance education system.
- Compare in about 100 words the similarities and differences between single mode and dual mode DE systems.
- In about 100 words identify the most important requirements for success when using the single mode delivery system.
- Take the specific demands and challenges of your local situation into account and identify the advantages and disadvantages of the two DE models. Make recommendations to policy-makers concerning the requirements for success of each delivery system.
- In about 100 words describe a project that applies distance education in a developing society situation. Comment on how the project you have selected is related to the concept of the “Digital Divide.”
- In about 100 words explain what we can learn from the African Virtual University experience regarding distance education in developing societies.
- Discuss in 100 words Mushi’s paper on the “Digital Divide” on the need for concerted efforts to decolonize the African mind as a pre-requisite for participation in the technology revolution.
- In about 150 words discuss what the “Digital Divide” means with respect to your own country’s situation.

Introduction

In Module One, you learned that distance education is a form of educational provision where the acts of teaching and learning are separated in terms of time and/or space. To bridge the barriers of time and space, distance education must necessarily use a variety of ICTs to present the learning materials and provide for interaction.

Without ICTs, distance education would not be possible, but because distance education is a **planned** educational activity, this form of technology-mediated learning has **special educational requirements for the organizations involved** with distance education practice (see also Moore and Kearsley’s 1996 definition in Module 1).

Continuing with your study in this module you will learn that DE has traditionally been structured according to one of two organizational types. These are referred to as “single-mode” and “dual-mode” distance education institutions. However, the pervasive advances in digital ICTs are resulting in a number of different variations in how the functions of distance teaching can be achieved over a distance, and new classifications of institutions are now being proposed.

It is important to understand that what defines distance education practice should not be the technology used, but the pedagogical or teaching-learning variables. Technologies change, but the fundamental issues to be considered about how people learn and how to teach them remain constant challenges.

Consequently, our examination of the different types of distance education will start by recognizing the core functions of distance teaching and only then will we have an overview of how different ICTs can achieve these functions.

This will provide a useful foundation for examining different case studies of distance education institutions.

The module is divided into two units. The first unit presents the analytical framework based on the functions of distance teaching as mentioned above, and the second unit discusses the challenges and opportunities of the “Digital Divide” with particular emphasis on the implications for education in developing societies. The module contains activities designed to help you to think about and interact with the content, the instructor and other learners. The activities can also be used for assessment (and grading by your instructor).

To enrich your learning experience and to incorporate a variety of diverse views and opinions about distance education, we have provided print articles related to this module of study. We urge you read the articles. They are important, since they highlight basic issues relating to the module and will help you to respond to the assignment questions provided.

Below is a list of the readings. We have identified the unit of study within each module of the course that the reading best supports. We will prompt you at appropriate points in the text when you should read the relevant paper. The list is provided here for your convenience and, importantly, to provide you a preview of the contents of the module.

Module 2 Readings:

Unit 1 “Single Mode and Dual Mode Institutions”

Reading 1. Daniel, J.S., & Mackintosh, W.G. (In Press). Leading ODL Futures in the Eternal Triangle: The Mega–University Response to the Greatest Moral Challenge of Our Age. In M. G. Moore, & W. Anderson (Ed.), *Handbook of DE*. Mahwah, New Jersey: Lawrence Erlbaum Associates.

Purpose: Read this paper to discover a number of pertinent issues relating to the challenge of tackling the overwhelming global demand for tertiary education. The paper analyses the fundamentals underpinning the practice of single mode DE as well as the factors responsible for the quality of DE provision under this mode of delivery. The paper concludes with some discussion of the future of single–mode distance education providers taking the pervasive advances of digital ICTs into account.

Unit 2 “The Digital Divide”

Reading 1. Mushi, H. (2001). *What is the “Digital Divide” and Where Does Africa Fit into the Context of the Digital Divide?* The Pennsylvania State University: Doctoral candidate’s unpublished paper.

Purpose: Read this paper to find out what impact, if any, the digital divide has on Africa and read to find out how the author advances the need for concerted efforts to de–colonize the African mind, which she believes will equip Africans with confidence, innovativeness and genuine participation in the technology revolution.

UNIT 1

“Functions of Distance Teaching and Corresponding Organizational Forms: Implications for ICTs and Developing Society DE Initiatives”

Assignment 1

Before you proceed, think about a conventional face-to-face classroom situation and answer the following questions.

- What do you think are the most important functions or activities that a conventional classroom teacher must carry out in a face-to-face teaching situation to facilitate learning?
- In what ways (if at all) do you think these functions of teaching will differ when learners are at a distance from their teachers ?

Put down your answers on a piece of paper to refer to before proceeding.

Based on our own experience of face-to-face teaching there are clearly a number of important functions that the classroom teacher must carry out in order to promote effective learning. Using a curriculum or syllabus (which the teacher may have to prepare), the teacher must identify appropriate ways to present the learning content in the classroom, for example, in a talk or lecture or in a classroom discussion. A good teacher would structure the lesson before the class meeting time, thinking about what teaching techniques would be most appropriate in order to achieve the respective teaching objectives and what teaching aids can be used in the classroom to support and enrich the learning experience. The teacher will also need to think about ways in which to assess the learners’ progress. Assessment usually includes both “formative assessment” (during the course of teaching to provide opportunities for the learners to practice and refine their newly acquired knowledge); and “summative assessment” (that is, to evaluate the overall effectiveness of the course at its conclusion.) A very important dimension of classroom activity concerns the dialogue between teacher and learners and among learners themselves. The teacher can use a range of communication strategies, for example, question and answer techniques, debates and classroom discussions.

Distance education is an **educational** activity, and therefore the core teaching functions of presenting the learning content, providing for assessment, planning for dialogue that we see in the classroom situation should **also be present** in the distance teaching situation. However, bridging the separation of time and space in distance education by using ICTs influences the way in which the specific processes of teaching are conducted as well as the ways that distance education institutions are organized to deliver teaching in this form.

As we have suggested already when comparing distance teaching and face-to-face teaching, the most significant difference is the fact that in distance education each of the functions of teaching is usually mediated using some form of technology, for example, print technology or more sophisticated digital technologies (ICTs). Furthermore, in distance education, there is one function of teaching that is specially important and has to be discussed separately, and that is the function of “student support”.

Another interesting difference is that in most distance education systems, the entire teaching process must be designed and developed **before** the student registers, (in fact as long as a year or two), unlike the classroom situation where each lesson can be planned individually based on the feedback of previous lessons. In distance education, the learning materials must be carefully and meticulously designed not only well in advance of the actual learning but also for heterogeneous group of students many of whose individual characteristics are not known. This requires special design techniques and skills.

In this Unit we are going to examine how the different functions of distance teaching can be achieved through the mediation of technology and also how different organizational types facilitate the design, development and delivery of distance teaching. Therefore, this is the focus of Unit 1.

In Unit 2 we will define the concept of ICTs in distance education and will examine the challenges and opportunities associated with the so called “Digital Divide” which is particularly relevant for developing societies.

Models of DE – Independent Study and the Remote Classroom Model

Since the beginning of distance education there have been two principal models of delivery:

1) **Independent study**, which was based on the methods of correspondence study. In this approach learners are able to study independently from the teaching institution at their own pace, using specially prepared printed study guides. Opportunities for assessment are provided by the submission of written assignments via post. The assignments are graded and returned to the learners with detailed comments from their lecturers or tutors. The independent study model is an example of an **asynchronous** delivery system because the teaching takes place not only at a different place but also a different time from the learning. Examples of organizations that are primarily using the independent study model include the British Open University and UNISA (see case studies later in this Module); and

2) **The remote classroom model** (sometimes called the distributed classroom model) is an approach in which a conventional classroom lesson is relayed to one or more remote sites using broadcast television or video-conferencing technologies. This is an example of a **synchronous** delivery system where the learning occurs at a different **place** from the teaching, but it occurs at the same **time**. This model has been very popular in the United States, and in the developing societies it is used, for example, by Mexico’s Telesecundaria initiative and aspects of the African Virtual University (AVU) project (see case studies later in this Module).

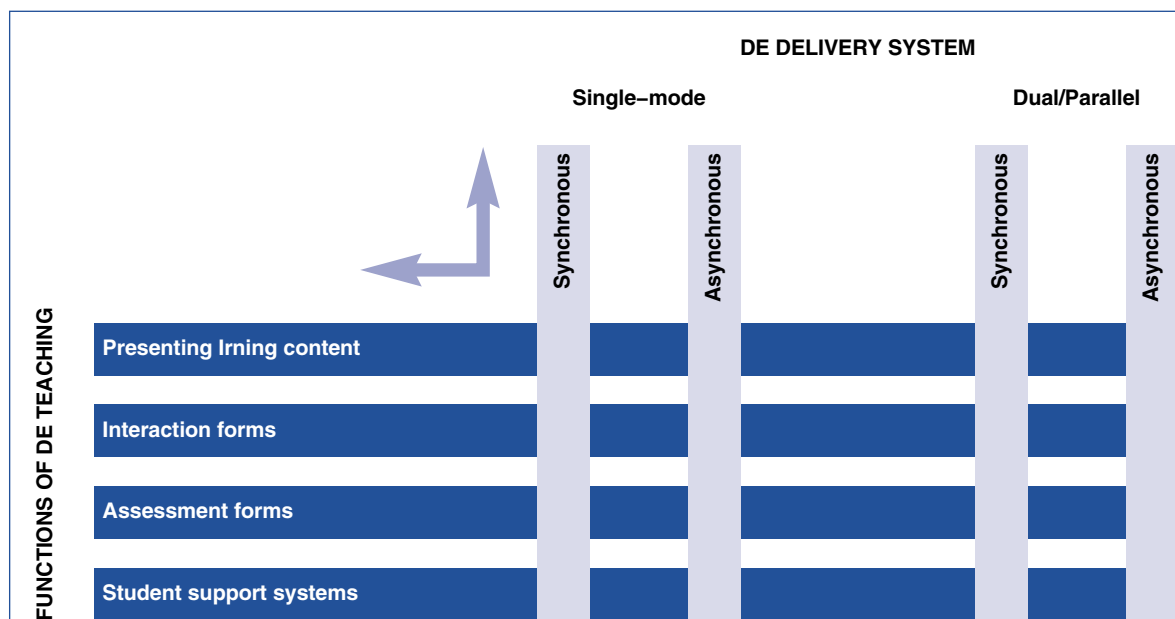
The Distance Education System - Synchronous or Asynchronous?

Until very recently distance education systems were either asynchronous or synchronous. However, one of the effects of the evolution of ICTs is an increasing range of opportunities for mixing the two approaches. Consider, for example, the telephone. This is a synchronous technology that can be the sole medium of delivery of all the teaching functions, when a group of learners gathers around a telephone receiver with a loudspeaker and interact with their lecturer or tutor, but it can also be used quite effectively in a supporting role in the generally asynchronous independent study model above.

When you consider the capabilities of the Internet and the WWW, the classification of distance education can become even more difficult because of the myriad of delivery alternatives. The WWW is simultaneously an asynchronous and a synchronous communication technology. For instance, online chat forums, where users can communicate in real-time with each, would be an example of a synchronous WWW application. Other synchronous WWW examples include desktop video-conferencing or e-learning systems like Interwise™ (see www.interwise.com). Interwise™ is one example of many e-learning systems which allow multiple learners to listen to the voice of their lecturer (Internet based telephony) on a multi-media computer, while viewing and interacting with learning materials that were pre-prepared by the lecturer or developed during the online learning session on the learner’s local web browsing software. On the other hand, the use of discussion forums, where learners post their messages at different times according to their own personal circumstances, would be an example of where the WWW is used as an asynchronous technology.

In this Unit we will introduce a pedagogical framework to help us develop a coherent picture of the wide range of distance education alternatives.

Figure 1.1 below is a matrix which shows the interaction between the four main teaching functions in distance education and the dominant delivery systems which can be used to carry out each of these functions. Each function can potentially be delivered either synchronously or asynchronously. These functions can be delivered by organizations that are either single-mode systems or dual mode systems or what we will call “parallel mode” systems. Single mode systems offer all their courses using only distance education methods, whereas dual mode systems offer both face-to-face and distance education forms of provision (the difference between dual and parallel mode will be explained later). Each of these aspects will be discussed briefly in the paragraphs which follow.



(Figure 1.1)

Teaching Functions In Distance Education

Presenting the content of learning is the function most commonly associated with teaching, namely, the exposition of the subject matter, skills or competencies which must be learned. In most single-mode and dual-mode institutions this function is achieved by using asynchronous delivery methods, for example, printed study guides or electronic learning materials that can be delivered on the WWW. However, synchronous technologies can also be appropriate, for example, live broadcasts of lectures that are distributed to remote sites.

Providing for interaction (or we often say ‘dialogue’ to describe interaction between learners and teachers). This refers to an activity which differentiates teaching from simple distribution of information, for it is the process by which teachers apply their skills to help each individual learner convert information into personal knowledge. Surprisingly, interaction does not necessarily have to be synchronous. For example, a lecturer providing detailed comments and feedback on a written assignment is a good example of asynchronous interaction. E-mail communication can also be used as an asynchronous form of interaction. Simulated discussion (that is not real interaction between two people) can be achieved by using a conversational writing style in the learning materials. There is a variety of synchronous technologies that can also be used to facilitate interaction, for example, telephone conversations, teleconferencing and videoconferencing, not forgetting the opportunity for occasional face-to-face meetings with lecturers and tutors.

We can distinguish between three types of interaction:

- *Learner-content interaction*, where the learner interacts alone with the learning material in the form in which it has been presented;
- *Learner-instructor interaction*, where students engage in different forms of dialogue with the instructor;
- *Learner-learner interaction*, where learners interact with each other individually or in groups.

In all distance education systems, it is important to look for ways of including all forms of interaction.

Providing for assessment refers to the teaching function of monitoring and evaluating the learners’ progress for both formative and summative purposes. Asynchronous assessment using, for example, written assignments submitted by post or electronically can be used for both formative and summative purposes. Final challenge examinations that are written at predetermined examinations venues — a face-to-face situation — is an example of synchronous assessment in DE. Synchronous oral examinations can also be conducted in distance education systems using, for example, video-conferencing technologies.

Student support as a function of distance teaching refers to “the range of services both for individuals and for students in groups which complement the course materials or learning resources that are uniform for all learners” (Tait, 2000, p. 289). This is an interesting feature of distance education systems, because in face-to-face provision the professor or teacher carries out both the cognitive and affective dimensions of student support. However, in distance education specific provision must be made at the systems level for this function of teaching. Most of the world’s open universities, large single mode systems have decentralised student support networks in which each student is assigned to a regionally based tutor.

Assignment 2

Construct a table with the following headings:

Distance teaching function	Asynchronous examples	Synchronous examples

Provide one asynchronous and one synchronous example of technologies that can be used to achieve each of the following teaching functions in a distance education system:

- presenting the content of learning;
- learner-content interaction;
- learner-instructor interaction;
- learner-learner interaction;
- assessment;
- providing for student support.

Single Mode, Dual and Parallel Mode Institutions

It is important to distinguish between these different organizational forms. How an institution is organizationally structured defines its financial resource distribution, administrative procedures, design, development and delivery procedures.

As indicated earlier, single mode institutions offer **all** their courses using distance education methods. Dual mode institutions offer **some** courses in face-to-face modes and **some** in distance education modes. Parallel institutions offer components of a particular course in **both** face-to-face modes and distance modes as components **of the same course**.

Single Mode institutions.

There are many single mode institutions in all parts of the world. Examples include the Open University in the United Kingdom (OUUK), the University of South Africa (UNISA), the Open University of Tanzania (OUT), the Indira Gandhi National Open University (IGNOU) in India and the Sukhothai Thammathirat Open University (STOU) in Thailand. (Note that we have provided details of some of these in case studies later in the module.) All these single mode institutions draw very large student populations in their respective countries (and some also attract students from around the globe). You usually find single mode institutions where populations are large and dispersed (Open University of Hong Kong is one exception); where higher education systems have been highly selective and make access difficult for the masses of the population and where leaders are attempting to promote wider access to education as a political, social or economic objective. It is important to note that the size of a country and its national income do not directly affect whether a single mode institution develops (IITE, 2000, p. 23). Instead, generally it is the historical-political and socio-economic context of local settings that impacts whether a particular mode of institution develops.

We will now introduce short case studies of three single-mode institutions. Carefully read through each case study to identify the common features you can detect in this mode of delivery.

Case Study: Open University in the United Kingdom (OUUK)

Structure and History: The Open University was established in 1969 as an independent and autonomous institution authorized to confer its own degrees and deliver professional training. The main aim was to "open up" higher education to adults who wanted to study part-time at degree level or update their work skills in areas such as management, education, or health. The OUUK's key goal was to "open" education to people, places, methods and ideas.

Programs: The OUUK offers certificates and diplomas and undergraduate and graduate degrees in a wide variety of content areas.

Enrollment: No educational qualifications are required for admission to undergraduate courses, though students must be at least 18 years old and resident in any European Union country or any other country with which a formal agreement exists. Partnerships exist with institutions in other parts of the world.

Enrollment is about 160,000 students with 112,471 undergraduates and 594 fulltime research degree students. Slightly more than 15,000 are outside the UK.

Course Development and Technology–Media: Courses are developed by special design teams, with first-year courses having as many as 20 full-time university and/or British Broadcasting Company (BBC) staff plus consultants and instructional designers and media experts working on them. The team designs a total integrated learning package comprised of printed materials, home experiment kits, BBC television programs, audio and video cassettes and CD-ROMs, access to databases of materials, teaching strategies, and orientation and training programs for students' tutors and counselors. The OUUK was the first distance teaching university to use an integrated mixed-media approach.

Student Support Services: A personal counselor is assigned to work with each student for the duration of his/her student career and for consulting on particular courses. Thirteen regional administrative and nearly 300 study centers are provided.

Plans: Recent initiatives include adding new law and language courses, applying more modern ICTs and developing courses for the WWW.

Sources of Information: Daniel, J. S. (1996), various pages; Keegan, D. (1996), pp. 193–196; Keegan, D. (2000), pp. 67–68; *Open University Facts and Figures*, 2000, and Perry, 1997, as cited in IITE (2000), pp.13–14.

Case Study: University of South Africa (UNISA)

Structure and History: Having begun as the University of the Cape of Good Hope in 1873, UNISA in 1946 became an independent DE institution. It is probably the world's first single-mode distance education university and the most advanced of the DE systems in Africa.

Programs: UNISA offers diplomas, certificates and degrees at both the undergraduate and graduate levels in a variety of content areas, with the Faculty of Commerce attracting the largest number of students. Like most open universities, UNISA aims to provide a "second chance" for university study for students who are unable to get places at conventional face-to-face campuses; cannot afford the higher residential university fees; reside in remote areas or are unable to attend residential classes because of employment or other commitments.

Enrollment: No educational qualifications are required for admission to undergraduate courses. UNISA has for approximately 120 000 degree and diploma students and approximately 34 000 certificate and music students. More than 80% of the students are employed, with almost half of the students over 30 and a quarter under

25. Low completion rates are a concern and to deal with this, about seven years ago the organization began restructuring its course design and development processes.

Course Development and Technology–Media: Historically, individual academics have had responsibility for both authoring study guides and tutoring at UNISA. But in 1994 that began to change, as course development teams were set up and a limited number of local part–time tutors was introduced. The teaching is largely the responsibility of an academic faculty member who teaches a course consisting primarily of printed study guides and tutorial letters, which are dispersed to students throughout the country. Audiocassettes and videocassettes are used in some of the courses. Face–to–face discussion classes are presented once or twice a year for courses with large enrollments at five regional locations in South Africa. Videoconferences are used in place of discussion classes for courses with lower student enrolments.

Student Support Services: UNISA is characterised by a centralized management with respect to teaching and course design from their central location in Pretoria, but until 1994 student support was limited to individual feedback on assignments in the absence of a decentralised system of tutorial support. Beginning in 1994, UNISA began to focus on quality improvements. The aim was to improve the quality of their courses and programs by using course development teams and the introduction of a limited system of tutorial support at regional study centers.

Plans: Although UNISA has made considerable progress with its transformation to a team development approach in the design of its materials, more refinements and improvements are planned. Considerable effort has been applied to ridding the organization of the remnants of apartheid ideology in some of its courses and employment practices of the past. The development of sustainable ICT enhanced solutions for overcoming the problems of student support in remote regions is a key strategic focus of the organization.

Sources of Information: Daniel, J. S. (1996), various pages; Moore, M.G., & Kearsley, G. (1996), pp. 219–222; Perraton, H. (2000), various pages.

Case Study: The Open University of Tanzania

Title: The Open University of Tanzania (OUT)

Structure and History: Of three recent attempts to launch a single mode open university south of the Sahara Desert, only the Open University of Tanzania has resulted in an independent, free–standing institution. OUT was established in 1993 to provide the people of Tanzania (among the poorest of the countries in Africa) a “second chance” to obtain higher education, since only about 1/3 of qualified Tanzanians were admitted to conventional face–to–face universities.

Programs: The OUT provides both degree and non–degree programs in a variety of content areas, including arts and social sciences, education, science, technology and environmental studies, and educational technology. Two of its degrees are intended mainly for teachers.

Enrollment: By 1998 OUT enrolled approximately 6000 students.

Course Development and Technology–Media: Though print is used as a basis, other technologies are applied in various forms of ICTs, including motion pictures, audio–systems, transmission systems both satellite and radio, and newer digital ICTs that include telecommunications and computers.

Student Support Services: There are 21 OUT centers known as regional centers in different parts of the country. A regional resident tutor or director, who is an overseer of all educational matters in the region, heads each center. In addition, a number of smaller units are established in the local districts, where students organize their own study groups.

Plans: During its seven years of operations OUT has made it a priority to cooperate with other educational institutions both in and outside of Tanzania, especially focusing on the national library network, science laboratories and information services. They have experimented with evolving ICTs and alternative sources of energy, and plan to continue these experiments in an effort to make their distance learning opportunities accessible to more people.

Sources of Information: Harry, K. (1999), pp. 110–122; Perraton, H. (2000), various pages.

Assignment 3

Read the following paper – Daniel, J.S., & Mackintosh, W.G. (In Press) *Leading ODL Futures in the Eternal Triangle: The Mega-University Response to the Greatest Moral Challenge of Our Age*. In Moore, M.G., & W. Anderson (Eds.), *Handbook of Distance Education*. Mahwah, New Jersey: Lawrence Erlbaum Associates. – which focuses on the experience of the single-mode distance education institutions, then answer the questions below:

- Compare the similarities and differences between single-mode and dual-mode DE systems (approximately 150 words).
- What are the most important requirements for success when using the single-mode delivery system? (approximately 200 words).

Dual Mode

In dual-mode institutions, distance education is integrated into the structure of a conventional teaching system. Both the face-to-face and distance students may have the same instructors, follow the same course syllabus and take the same or similar examinations. In fact, “resident” students sometimes use the same materials that were developed with the distance learners in mind. In the dual-mode institutions instructors usually undertake many of the functions that are undertaken by teams in the single-mode institution. In major dual-mode institutions, distance education is managed and administered in a special unit separate from the face-to-face instruction. In comparison to the single-mode institution, distance education in a dual-mode usually is performed on a relatively small scale. With respect to costs, many of the course development and overhead monies come out of resources allocated to the resident-based programs (see IITE, 2000, pp. 14–15).

Just as there are many single-mode institutions in different parts of the world, there are many dual-mode institutions around the globe. Examples include the University Sains Malaysia (USM) in Malaysia and the University of Zambia in Africa. See the case studies below.

Case Study: University Sains Malaysia (USM)

Title: University Sains Malaysia

Structure and History: For many years USM was the only dual-mode university in Malaysia, until the government decided to move other universities in the same direction. USM’s distance education programs were launched in 1971 and were experimental until 1982, when it became a permanent part of the greater university. It still maintains, however, a separate faculty. USM has a government-endorsed monopoly on adult distance education, because Malaysia believes that is the best way to get a high-cost benefit where financial, infra-structural and human resources are limited.

Programs–Assessment: USM offers degree programs across a range of academic areas.

Course Development and Technology–Media: USM develops courses and programs following a five–step method, (i.e. plan, develop, produce, evaluate and revise). A Centre for Educational Technology (CET) produces all of the multi–media programs. Not only is print used but also radio, audio and videocassettes.

Student Support Services: Many students are required to attend annually a three–week residential school, where they have access to teachers and instructional technologists and other academics, and to live on campus for their final year of study for their bachelor’s degrees.

Plans: Having existed for only twenty–two years, USM provides a model for countries or regions that have a relatively small population and small number of universities from which to draw resources for distance education programs.

Sources: Harry, K. (1999), various pages.

Case Study: University of Zambia (Zambia)

Title: University of Zambia

Structure and History: The University of Zambia was founded in 1967 with distance education written into its charter. Distance education provides opportunity for students in education, humanities and social science in a country where the overall enrollment in higher education is about 2.5%

Programs–Assessment: Zambia uses distance program as a way into and out of conventional face–to–face study. There are only 28 courses in three programs, with the largest program in education.

Enrollment: In 1967 the distance program began with 152 students and now has approximately 600–800. Significantly pass rates are high and dropout rates low. This is an achievement, given the weak economy and limited resources available for distance education.

Course Development and Technology–Media: Radio programs supporting courses were abandoned in 1967. In Zambia DE has low status and there is little teacher training in this area.

Student Support Services: Only limited tutorial support is provided, dependent primarily on the voluntary commitment of staff in various units and/or departments of the university. Part of the reason for this is that the Directorate of Education has no administrative authority of control over various providers of student services and can do nothing if effective services are not provided.

Plans: With support continually cut (since the mid 1980s) the future appears to be relatively ominous.

Sources of Information: Perraton, H. (2000), pp. 109–110.

Assignment 4

Imagine: You have recently been appointed to advise your local Ministry of Education on the anticipated expansion of DE in your country. The Ministry is undecided whether they should invest in a new single-mode institution, several dual-mode institutions or a combination of the two.

To answer the following questions, you will need to consult your course materials and the following reading – Daniel, J.S., & Mackintosh, W.G. (In Press) Leading ODL Futures in the Eternal Triangle: The Mega-University Response to the Greatest Moral Challenge of Our Age. In Moore, M.G., & W. Anderson (Eds.), Handbook of Distance Education. Mahwah, New Jersey: Lawrence Erlbaum Associates.

- *Taking the specific demands and challenges of your local situation into account, identify the advantages and disadvantages of the two DE models.*
- *The ministry is very concerned about ensuring acceptable student success rates and, therefore, also would like you to list recommendations concerning the requirements for success of each delivery system.*

“Information and Communications technology” (ICT) is an embracing concept that includes the systems, processes and people that are involved with technologically mediated communication. Information and Communication technologies (ICTs) refer to ‘a diverse set of technological tools and resources used to communicate and to create, disseminate, store and manage information’ (Blurton 1999, p. 46).

The concept is not limited to the popular perception that ICTs are the hardware devices or that ICTs only refer to the newer forms of technology associated with the Internet revolution.

However, given the potential that evolving technology may hold for distance education in future, we think it is useful to identify the special characteristics of new (digital). They are:

- capable of integrating multiple media into single applications, for example, voice, video and text can be presented simultaneously on a web page;
- interactive in the sense that the information technology can control and manage the sequence of communication depending on user or other input, thus incorporating features of ‘intelligent’ communication;
- more open because digital formats can be interpreted by a variety of hardware platforms; for example, a digital audio clip can be heard over the Internet, but can also be broadcast over analog or digital radio systems with relative ease.

The inherent potential of digital ICTs represents a qualitative difference regarding opportunities for improved pedagogy in distance education.

However, even though digital ICTs are creating exciting opportunities for the future of distance education, we must remember that distance education is FAR MORE than technology, whether digital or not.

Distance Education Is a Total System

Distance education is a total system covering the specialized structures, people and processes associated with the design, development and delivery of learning resources over a distance. In distance education it is far more important to get these processes of pedagogical design and development right than to focus too much on the hard technologies. The hard technologies will change, and this is why distance education systems must ensure that the processes of design, development and delivery are robust and that they can accommodate short-term changes in hard technologies.

A recent worldwide study based on the data obtained from 147 institutions involved in distance education conducted by von Euler and Berg (1998) shows that:

- Printed materials, augmented by audio and video materials are the dominant forms of learning materials used in distance education (see Table 2.1). Interestingly, the dominant proportion of printed materials in distance education is similar for the developed and developing countries. However, there are noticeable differences in the use of audio and multi-media learning materials, when comparing industrialized countries with developing countries. The use of audio based learning materials in developing countries exceeds the use in industrialized countries by 22%. However, developed countries use computer-based multimedia resources 329% more than developing countries.
- Mail and the public service telephone network are the main communication channels used in distance education (see Table 2.2). Due to the lower “tele-densities” in **developing** countries, the use of this

channel is 32% less when compared to industrialized countries. Interestingly, radio and direct broadcast television are respectively 383% and 78% higher in developing countries when compared to levels in industrialized countries. This suggests that developing societies can use more advanced technologies to overcome existing barriers and historical infrastructure problems associated with previous generations of technology.

Table 2.1: Comparative use of learning materials in distance education

	Developing countries (%)	Industrial countries (%)
Documents	100	99
Audio	86	67
Video	77	82
Computer-assisted learning	43	50
Multimedia	7	30

(Source: Von Euler and Berg 1998)

Table 2.2: Comparative use of communication channels in ODL

	Developing countries (%)	Industrial countries (%)
Mail & physical delivery	86	87
Public service telephone network	57	83
Radio	29	6
Direct broadcast TV	16	9
Terrestrial broadcast TV	11	13
Integrated services digital network	7	20
Specialized links (unspecified)	2	17
Digital specialized links	5	11
Public data network	2	12
Cable	2	11

(Source: Von Euler and Berg 1998)

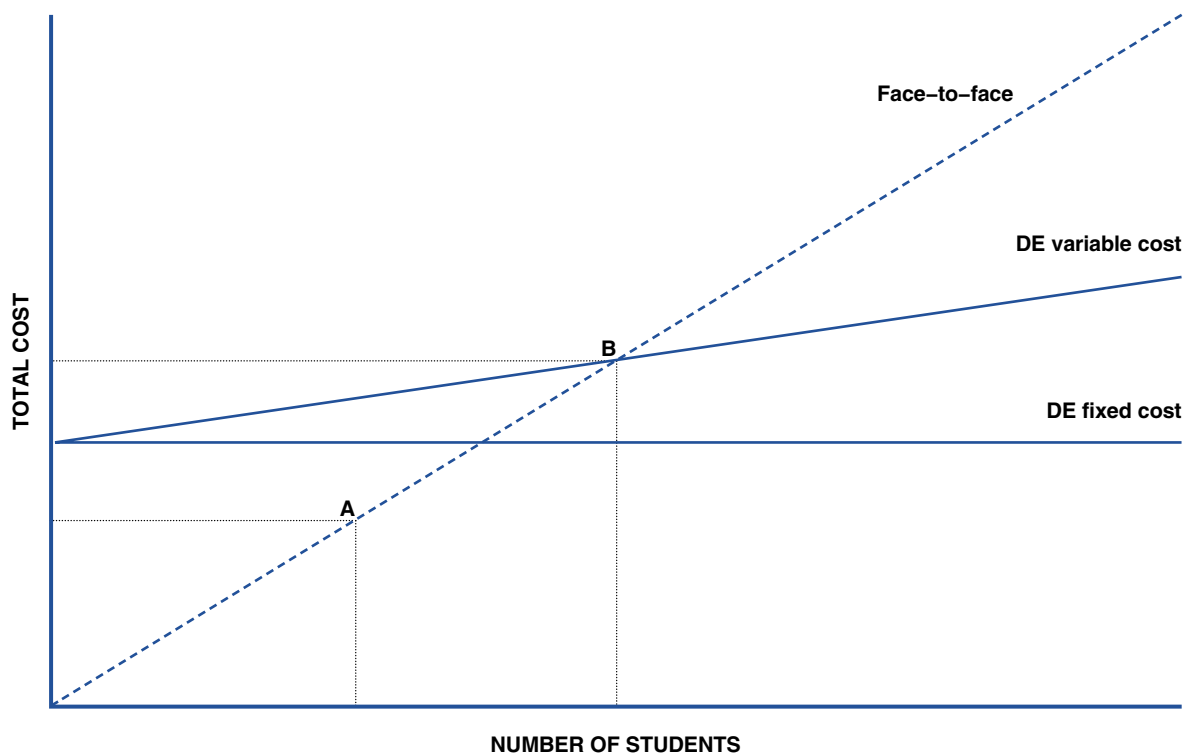
One of the most striking features of these statistics is that the technology of print-based distance education remains the dominant ICT used in distance education for both industrialized and developing society regions.

However, there is a considerable discrepancy concerning the application of alternative ICTs in distance education between developed and developing society contexts. This provides the basis for our discussion on the “Digital Divide” in distance education. First, we need to understand the typical costs associated with distance education systems.

Cost Structures of Distance Education and the Potential Impact on Costs of Digital ICTs

The comparatively lower unit cost (that is cost per student) of distance education is one of the main reasons why distance education is proposed in many developing countries. However, there are examples of distance education being more expensive than face-to-face education. To explain this, we have to understand the main drivers of cost in various distance education systems.

The unit cost per student of the large single mode, (so called "mega-universities") is on average 50% less than the unit cost for conventional face-to-face universities in the same country. In South Africa, for example, the state allocation of funds to UNISA is approximately 10% of the total funds spent in the higher education sector, yet UNISA provides a university education for 32% of the total number of university students in the country. There is a number of preconditions that must be met before these cost advantages can be achieved. Figure 2.2 below illustrates the total cost of a single mode delivery system in comparison to the number of students. (Please, note that this graph is an oversimplified representation of the costs of single-mode distance education and that it illustrates total cost and **not** the unit cost.)



With reference to Figure 2.1 above, the costs of traditional single-mode distance education are based on the interaction among fixed costs, variable costs and the number of students. All the costs of designing and developing and nearly all the cost of reproducing a standardized study guide are *fixed* — for example, the total cost of developing a study guide remain the same, irrespective of whether one student or ten thousand students register for the course using that guide. The development of quality distance learning resources is very expensive.

Depending on the type of teaching model, for example a wrap-around study guide that is based on a prescribed textbook or a stand-alone integrated media course, the development ratio may range from 75 to 300 hours, for each hour of learning. Assuming an average year course at a university of 200 learning hours and a design using a reasonable level of media integration, the development ratio would be about 150:1. This means that you would require 30000 person hours to develop this course. That's the equivalent of 6 people working full-time on such a development for about 2½ years!

The second cost component in a single-mode distance education system is the variable cost. You will remember that we identified student support as a core function of distance teaching earlier in the module.

The provision of student support will increase in proportion with the number of enrolments and is, therefore, an example of a variable cost in distance education (the British Open University maintains a student-tutor ratio in the region of 22:1, which means for every additional batch of 20 students an extra tutor must be employed.) However, the cost of tutoring is usually less than the cost of employing a full-time academic at a face-to-face university.

The total cost of distance education is calculated by adding the fixed cost and variable cost together. In face-to-face teaching, the total cost curve is essentially a variable cost. The more students you have in a face-to-face system, the more lecturers you will need to appoint and pay. With reference to Figure 2.2 above, you will see that the total cost of single-mode distance education is considerably more than the total cost for face-to-face teaching when the student numbers are low as illustrated by point A on the graph. Single-mode distance education will only be cheaper when the student numbers are higher than the corresponding level associated with point B in Figure 2.2. The reason for this is that the huge fixed cost can now be spread over large numbers of students (i.e. the average or unit-cost per student decreases with each additional enrollment).

We mentioned earlier that Figure 2.2 was an oversimplification. There are other substantive factors that must also be taken into account when considering the cost of distance education. It is not simply a question of ensuring that there is a high number of participating students. For example, you could have enough students for distance education to be economical, but if your institution has too many courses on offer, the fixed cost will increase accordingly. Furthermore, courses must be revised on a regular basis. The longer the “shelf life” of the course, the lower the unit cost for teaching that course will become.

Complicating matters further is the question of effectiveness. The design of a distance education system is not simply a question of reducing the unit cost of provision. Quality is also a very important factor. Effectiveness can be measured, for example, by the retention and completion rates of the distance education system concerned. For instance, in an attempt to reduce the cost of provision, a single-mode institution may decide to cut back on student support by increasing the student-tutor ratio significantly (remember student support is a variable cost). This is likely to have a direct influence on the number of students that are able to complete their studies successfully. Although significant savings in the cost of provision can be attained by this kind of strategy, the quality of provision will be compromised. If the quality drops below acceptable levels, it is easy to see that distance education can become a very expensive experiment, and it emphasizes the importance of proper financial management in conjunction with the basic pedagogical demands for quality in distance education systems.

The cost examples illustrated above used single-mode delivery systems as the foundation. It is important to mention that the cost structures of dual-mode institutions are different. **Therefore, you cannot discuss the costs of distance education without considering the delivery system that is used.** For example, typically dual-mode systems use the same lecturers teaching in the face-to-face situation for the development and teaching of the distance education courses. What appears initially to be a cost saving is at the same time a limiting factor. Dual-mode systems operating in this way will not be able to expand their student numbers above the level that a single lecturer, who is also teaching on campus, can realistically manage. There are also “opportunity costs” in the activities that the faculty might have done, if they have not been required to spend time in distance teaching; these could include, for example, neglect of their face-to-face classes which would be a real cost.

Turning to the potential impact on the costs of distance education resulting from the implementation of digital ICTs, we should consider a few points. This is a perplexing question, because on the one hand advances in technology have resulted in substantial cost reductions in the provision of distance education. Yet on the other hand, the introduction of advanced technology may result in increasing the cost of provision in ways that could result in distance education becoming more difficult to access.

The potential reduction in cost resulting from advances in technology is in fact, one of the main reasons why we are observing exponential growth in the number of institutions getting involved with mainstream distance education. At the beginning of the 1990s very few campus-based universities were involved with teaching their courses at a distance. The situation is very different at the beginning of the 21st Century. For example, it is estimated that 84% of the undergraduate colleges and universities in the US will offer distance education courses, representing a rise of 62% since the review a year before (CHEA, 1999). One of the main reasons for

this escalation is that many of the traditional barriers of entry into the distance education market have been removed as a direct result of advances in technology. Consider, for example, that digital printing technologies combined with desktop publishing software effectively mean that you no longer need to invest in expensive offset printing technologies, which was previously the case for the large single-mode providers. Furthermore, the cost of communication has reduced by a factor of 10,000 in the last 25 years, and the increase in computing power per unit of cost shows similar trends.

On the other hand, one of the leading experts on cost issues has concluded that electronic education is more costly than previous generations of distance education and he suspects “that this may prove to be more costly than traditional education” (Rumble 2001, p. 230). The dilemma is that one of the core values of distance education — namely, to widen access to those who for whatever reason were previously denied an education — may be compromised, especially for poorer sectors of our society. The ramifications for social equity are worrying. Does this mean that forms of distance education using cheaper technology will be reserved for the poor, while the more affluent sectors of society will be able to reap the benefits of pedagogical enhancement enabled by more expensive digital technologies? This issue of a ‘Digital Divide’ is one that will be discussed in the following unit.

We do know however, that simply adding digital ICTs for distance education within an existing organization — without corresponding changes to the systemic structures and processes of these organizations— can be very disruptive and result in cost increases. Costs in this kind of environment increase in relation to the number of component changes in the product. Adding on digital ICT enhancements, for instance, onto an existing single mode delivery system will increase the unit cost of the product. This again emphasizes the fact that distance education has to be seen as a total dynamic system, and changing one part, such as implementation of digital ICTs, will not be possible without corresponding adjustments to other parts of the system.

Assignment 5

Continuing with your imagined responsibilities as an advisor to the Ministry of Education, the Minister is adamant that a new (or additional) single-mode distance education university must be established in your country. The Minister says that distance education is far cheaper than establishing another campus-based university, and can see no reason why further discussion is necessary. In about 200 words, briefly outline the factors that must be taken into account before you would be able to advise that this form of distance education would in fact be cheaper.

As you can see, costing is a complex area of study. Instead of going any deeper here, we would like to suggest a number of sources you can consult should you wish to delve deeper into this subject.

- Rumble, G. (1997). *The Costs and Economics of Open and Distance Learning* by Greville Rumble. London: Kogan Page.
- Hülsmann, T. (1999). The Costs of Distance Education. In K. Harry (Ed.), *Higher Education through Open and Distance Learning: World Review of Distance Education and Open Learning*. London: Routledge and Commonwealth of Learning.

Unit Closing

To summarize in the first unit of Module 2 you have:

- thought about the functions of distance teaching and how they can be achieved using a variety of ICTs,
- thought about different ways in which the functions of distance teaching can be structured within organizational systems, that is single-mode and dual-mode systems — both of which can utilize synchronous and asynchronous methods of communication,
- thought about what ICTs are and how they relate to distance education,
- thought about the factors, which can influence the cost-effectiveness of different distance education systems.

UNIT 2***“The Digital Divide – A Perceived ‘Gap Between the ‘Haves’ and ‘Have-Nots’”***

Now you are ready to consider the challenges and opportunities associated with the “Digital Divide” with particular emphasis on distance education in developing societies. So, please, move on to Unit 2 of Module 2.

You may be wondering, why the issue of the “Digital Divide” has been mentioned so often in this Module — a module which so far has focused on functions of distance teaching and the corresponding organizational forms. Surely, the widening of access to education (through distance education) will ultimately contribute to sustainable wealth generation and narrowing of the gap between richer and poorer nations and regions, i.e. the “haves” and the “have-nots”. But that is not necessarily so.

The expression “Digital Divide” usually refers to the gap or the negative consequences of the gap between those that have computers and are connected to the Internet and those that do not and are not. The problem is that although distance education through the widening of access to educational opportunities will help combat the difference between rich and poor, the delivery of distance education is increasingly dependent on ICT infrastructure, which is increasingly based on digital technology that may be too costly for developing societies.

Making matters worse is that in developing societies the majority of the most disadvantaged communities live in remote rural areas, where ICT infrastructure is non-existent. Thus, for example, in Sub-Saharan Africa where the gross enrollment ratio for tertiary education is below 4% (compared with some 80% in highly industrialized nations like the US and Canada) the need for distance education is acute, but 60% of the population resides in rural areas where telecommunications are virtually non-existent. It seems like an insurmountable problem. Yet, there are ways in which these challenges can be tackled, and some of the solutions may even paradoxically utilize the power of digital ICTs.

In 2000 the World Bank claimed that the “divide” between low- and high-income countries is growing. Let us consider some statistics provided by the World Bank. First, television sets: today, the number of television sets per 1,000 inhabitants ranges from less than one in Eritrea, to 5.5 in Ethiopia and 64 in Cote d’Ivoire, as compared to 322 in Trinidad and Tobago, 469 in the Czech Republic and 805 in the United States. Next, personal computers: the number of personal computers per 1,000 inhabitants ranges from less than 1 in Burkina Faso, 27 in South Africa and 38 in Chile to 172 in Singapore and 348 in Switzerland.

What about Internet usage? In 2000 the World Bank found an average of one Internet user per 5,000 persons in African countries as compared to 1 user per 6 persons in Europe and North America. With respect to Internet usage in different regions of the world, CNN in 1998 reported that 90 million North Americans had access (53% of the population) with only .9 million Africans (0% of the population) having access, with Asia, the Middle East, Latin America, Eastern Europe somewhere in between. In 2000 the statistics looked very similar. Predictions for 2003 follow the same pattern, with 171 million North Americans (34% of the population) and only 6.1 million Africans (1 % of the population) coming online.

We have found the picture with respect to “connecting” via telecommunications and, especially, online very bleak. Consider this: of the world’s people who are online, over ? They live in the United States or Canada, even though their combined populations represent less than 6% of the world’s total population. With respect to phones, 2/3 of the world’s children have never made a phone call. Of the world’s six billion people, three billion live on less than two dollars a day.

Many developing countries even lack the basic infrastructure for the information revolution: phone lines and electricity. Not only do they lack the technology, but even if they had it, they would find it a challenge to use it. The reason — they lack basic ICT literacy skills as well. The critical question is whether this is a substantive reason to disregard the potential that ICTs may hold for development, wealth generation and distance education futures? What do you think?

Response of Developing Countries

Despite these problems, there is a concerted effort by developing society leaders to curtail the "Digital Divide." For example, President Thabo Mbeki of South Africa, at the opening of the Biennial Meeting of the Association for the Development of Education in Africa had the following to say:

"We **must** use, we **must** encourage the use of information technology in education, so as to link far-flung places and institutions of learning, to bridge the gap between urban and rural areas, to enable African children to advance scientifically so as to compete on an **equal footing** with the rest of the world" (our emphasis) (Mbeki cited in ADEA 2000, p. 3).

Elsewhere, at a reception dinner held for African Youths during the International Telecommunications Union (ITU), Telecom Africa 2001 conference, President Mbeki talking about ICTs said:

"Our youths as successor generations has a particular challenge to understand, develop and master this technology, not just for boasting, but to be able to use it to overcome the problems of poverty, marginalization and underdevelopment ... We must continue the fight against poverty, underdevelopment and marginalization and ICT is critically important to that struggle" (Mbeki, cited by This Day, AllAfrica Global (allAfrica.com)).

Closely related to the pervasive advances of digital ICTs are the opportunities and threats associated with globalization. In this regard, developing society leaders are also stressing the importance for these societies to play an active participatory role in finding their own appropriate solutions to the problems.

For example, President Mkapa of Tanzania stresses that universities in Africa "must produce men and women willing to fight an intellectual battle for self-confidence and self-assertion as equal players in the emerging globalized world" (Cited by the World Bank 2000, Introduction, p. 2). Masingue, for example, arguing the African case says: "You cannot be part of the global village by sitting and waiting to be 'globalized' ... We want to be the globalizers" (cited in Useem, 1999, p. A52).

The important message regarding the "Digital Divide" is that developing societies must themselves take the initiative in generating their own solutions using a learn-by-doing approach. It is unlikely that the industrialized nations will focus specifically on developing technological solutions for the developing society problems, because they are not faced with the same problems. For example, most industrialized countries do not have to focus on finding technology solutions regarding the problems of communicating in remote regions where basic telecommunication infrastructure is non-existent. Certainly, there are technological solutions that can be adapted from global best practice for local contexts, but the resolution of pressing problems will have to be resolved through indigenous innovation.

One example of a learn-by-doing approach is to study the success and failures of social action projects. Therefore, in this Module we will introduce a few examples. Very often innovative, distance education solutions can be found through the experiences from what works and what doesn't work.

Distance Education and Social Action Projects

According to the UNESCO IITE (2000) report, governments or international organizations often finance projects related to ecology, employment, family planning, and other socio-economic issues. These projects are intended to educate for progressive change in the groups and communities in which they are applied. . One such project in Africa grew into the Namibian College of Open Learning. Another significant initiative involving distance education and ICTs in a developing society context is Mexico's Telesecundaria initiative.

Case Study: The Namibian College of Open Learning (NAMCOL)

Title: Namibian College of Open Learning

Structure and History: A semi-governmental agency which began as a developmental project, NAMCOL was transferred from a directorate of continuing education in the Ministry of Education and Culture in

Namibia in 1997. Its goal is to provide wider access to out-of-school youth in order for them to complete their secondary school qualification (grades 10–12) or to adults who want to re-enter the formal school system but need first a secondary school diploma. NAMCOL intends to provide a 'second chance' (through either face-to-face or distance education) for those who have missed out on their formal education. NAMCOL aims to provide quality distance learning programs by making sound teaching and learning resources available, providing effective learner support to learners, and establishing and sustaining efficient management systems.

Programs–Assessment: Not only does NAMCOL provide alternative education but also a Certificate of Education for Development (CED) targeting community development officers, adult educators, and extension workers from various Ministries. This certificate aims at certifying those who practice community-based services without formal qualification. Assessment of students' academic performance is based on continuous assessment and a final examination.

Enrollment: Not given.

Course Development and Technology–Media: NAMCOL mainly uses printed textual materials, audiocassettes, and radio broadcast. For the CED program course materials were adapted from a UNISA course of study.

Student Support Services: There are open learning centers in the regions of Namibia, which have been established through collaborative efforts with other distance education institutions. These serve as resource centers to the communities to support distance education learners. NAMCOL's strategy for student support entails one week's face-to-face orientation every year and exam preparation towards the end of the academic year plus in-between workshops as deemed fit by the learner support services. CED students are expected to make use of the regional open learning centers and the proposed satellite centers. Telephone tutorials will also be available through NAMCOL regional centers and the Open Learning centers.

Plans: NAMCOL intends to expand its existing services from alternative 'second chance' education, so they are putting substantial resources into staff development and development of technical, vocational and professional courses.

Sources of Information: NAMCOL (1996) CED Concept Document.

Nyirenda, J.E., Indabawa, S.A., & Avoseh, M.B.M. (1999). *Developing Professional Adult Education Programmes in Namibia*. University of Namibia: Windhoek

The following case study examines an example, which has demonstrated the successful application of distance education in the secondary school situation using ICTs in remote rural areas.

Case study: Mexico's Telesecundaria Project

Overview: This is a television broadcast system that was started in 1968 to provide secondary education for rural students in grades from seven to nine.

Enrollment: 1 022 901 students in 2002.

Explanation of the system: The system is based on broadcasting a 15-minute lesson that is followed by a guided 35-minute teacher–student dialogue. There is a 10-minute break between each lesson session and the next broadcast. A rural community can initiate a new Telesecundaria program by starting with a minimum of 15 primary school leavers and providing a place to study. The Education Ministry provides a teacher, a television, decoder and satellite dish, the broadcasts, written materials and training for the teacher. The

learning materials are supplied free of charge to students and include a basic concepts guide and a learning guide covering each of the lessons being broadcast. The learning guide also contains carefully designed activities to help students synthesize and apply new knowledge. Teachers are also supplied with a teacher's guide and receive training via the same broadcast system. The programmes are broadcast twice each day to accommodate a morning stream and an afternoon stream. Typically a Telesecundaria school consists of three grades and a teacher for each grade. The average class size is 19 students per grade.

Features of success: Telesecundaria has succeeded in providing a full junior secondary curriculum using a distributed classroom model at costs which are comparable to the schools in urban areas, notwithstanding the relatively low teacher–pupil ratios. An additional feature ensuring cost–effectiveness of the system — apart from the large number of students — is the fact that students in a particular grade receive instruction in all subjects from a single teacher.

Innovations: Telesecundaria is also a good example of how technology can serve rural communities despite the problems normally associated with access to technology in remote areas. It is an innovative system because the costs of a rural school compares favorably with conventional classroom teaching in the urban areas. There is also the added advantage of low pupil–teacher ratios in Telesecundaria schools.

Sources: Calderoni, J. (1998) Telesecundaria: Using TV to Bring Education to Rural Mexico. Education and Technology Notes Series. 3(2): 1–10. Washington D.C.: The World Bank.

Durán, J. 2001. The Mexican Telesecundaria: Diversification, Internationalization, Change and Update. *Open Learning*, 16 (2): 169 – 178.

Assignment 1

Chose a learning project (from the case studies above, another project you have read about, or a project with which you are familiar) that applies distance education in a developing society situation. In about 100 words comment on how the project is related to the concept of the "Digital Divide". What are the lessons we can learn from the project you have discussed?

The World Bank's Effort to Help: The African Virtual University

The World Bank has initiated several projects to demonstrate and encourage the use of ICTs for education in developing countries. The Bank believes using ICTs to share teaching could help the developing nations (including the poorest) to improve the quality of their teaching in science, engineering, and business — and as a result expand student enrollments in those areas. One of these projects is the African Virtual University (AVU).

In the AVU a mixture of advanced technologies (particularly satellite communications and computer networks) is being used. Courses themselves were first brought from established producers of courses/educational materials from outside of Africa. Eventually, however, it is envisaged that instructional material will be produced by Africans.

In the late 90s the new African Virtual University collaborated with universities in Canada, Ireland and the U.S. to deliver satellite television broadcasts with one- and two-way audio–conferencing to universities in five African countries. One of them was Makerere University in Uganda, where more than 300 students participated in twelve courses (Information on the African Virtual University is adapted from H. Perraton, 2000, pp. 146–147).

The African Virtual University initiative is an example of the distributed classroom model of distance education using satellite broadcasting technology. Perhaps, the most significant benefit of the project is the attention it has generated regarding the potential benefits of using ICTs to overcome the barriers of the Digital Divide. One of the risks of being a pioneer is that you will inevitably make mistakes from which others will learn, but this supports the "learn-by-doing" strategy for innovating successful solutions for complex problems as long as these projects are carried out in an experimental setting and do not pre-empt policy decisions.

The African Virtual University project has underscored a number of important challenges that must be tackled regarding distance education futures in developing societies:

- When teaching spans across cultural barriers, the cultural relevance for local communities of lectures presented by foreign professors is a challenging problem
- Geostationary satellite broadcast time is expensive and the delivery system is limited to the number of students that can be present at the specific times of the broadcast and the numbers of students that can be accommodated according to the physical limitations of the receiving sites. In other words, the delivery system is confined to time and place constraints. This leads us to consider to what extent the same objectives might be achieved by distributing prerecorded video lessons with alternative strategies for interaction, especially when considering the significant differences in the costs associated with satellite broadcast and capital intensive infrastructure of receiving stations. In some ways AVU demonstrates the mistake of having decisions driven by technology rather than pedagogy.
- The African Virtual University initiative has raised important questions regarding whether ICTs should be used predominantly for replicating classroom pedagogy, or whether more cost-effective solutions can be found by applying ICTs to pedagogy derived from distance education in the independent study tradition.

These are challenging questions and will certainly become an important focus for future research.

Assignment 2

In about 100 words explain what part you think the African Virtual University can play in eradicating (or alternatively NOT eradicating) the “Digital Divide” in developing society contexts.

International Efforts

Addressing the “Digital Divide” on a global scale, member countries of the G-8 (i.e. economically developed countries) suggested that the term “opportunity” replace “divide.” To try to achieve the “opportunity” with respect to technology (that is ICTs) the G-8 leaders recommended these things need to be done – provide financial, intellectual, and other resource-based assistance for developing nations; coordinate international business and philanthropic organizations; ensure universal access to education and technology and create a climate that encourages entrepreneurship and drives technology into developing countries.

These international leaders believe the following factors are critical to eradicating the “divide”:

- lifelong learning with a particular emphasis on developing ICT skills;
- developing innovative approaches to extend the traditional reach of technical assistance, including distance learning and community-based training;
- networking of public institutions and communities, including schools, research centers and universities;
- both face-to-face and distance education deserve support;
- efforts should be made to standardize curricula, thus encouraging the transferability of qualifications and credit.

Finally, the taskforce the G-8 setup is supposed to encourage is participation in global e-commerce networks by assessing and increasing e-commerce readiness and use through the provision of advice to start-up businesses in developing countries and through mobilization of resources to help businesses to use IT to improve their efficiency and access to new markets.

Among the countries who have pledged support are the U.S.A and Japan.

For example, Japan has pledged:

- a \$15 billion package over 5 years to help countries struggling to alleviate debt and the same time provide their citizens with basic education and health;
- a satellite based education program that would provide IT training for 10,000 workers in developing countries. There is a plan to create a center in Japan for growing human resources in Asian countries to support IT training.

Assignment 3

Read the following paper from your Book of Readings – Mushi, H. (2001). What is the "Digital Divide" and Where Does Africa Fit into the Context of the Digital Divide? The Pennsylvania State University: Doctoral candidate's unpublished paper.

In this paper the author argues the need to de-colonize the African mind, which she believes will equip Africans with confidence and innovativeness for genuine participation in the technology revolution.

- Consider, using about 100 words, whether you agree with her.

Assignment 4

In about 150 words discuss how the "Digital Divide" impacts the distance education situation in your own country.

Assignment 5

Identify a key senior level administrator within your organization who will be involved with distance education ICT initiatives. Prepare to interview the administrator for one hour by developing 10 questions you will ask. Write down the questions including how you think the administrator might answer the questions.

Unit Closing

To summarize in the second unit of Module 2 you have:

- thought about the value of developing countries applying a learn-by-doing approach and considered the successes and failures of some social action projects;
- thought about the meaning of the "Digital Divide" for your own specific context and how distance education can assist in bridging this Divide;
- thought about what the experience of the African Virtual University regarding what we can learn about distance education futures in developing society contexts;
- thought about such things as a need to de-colonize the African mind in a way that will equip Africans with the confidence and innovativeness that are likely prerequisite to being able to genuinely participate in the technology revolution;
- thought about the implications of the "Digital Divide" in your own country.

MODULE 3***Components of a Distance Education System with Special Emphasis on the Demands of ICTs and Course Design in Developing Society Contexts*****Goal**

For you to develop an understanding of the dynamic nature of a distance education system within the context of a developing society with its unique demands concerning access to digital ICTs.

Objectives

At the end of this module, you will be able to:

- State in writing your thinking regarding the following:
 - ♦ Three distinct ways in which print media can be used effectively to present the content of learning in a distance education system.
 - ♦ Two asynchronous and two synchronous examples of how audio-visual media can be used in distance teaching and say which of the four functions of teaching introduced in Module 2 are being mediated by your specific examples.
 - ♦ In what ways can computer technology be implemented in distance teaching systems?
 - ♦ What are the most important aspects to consider when deciding on the implementation of computers in distance education systems?
- Consider the following questions and write a short essay explaining your view:
 - ♦ Which of the following two strategies would you recommend for your specific distance education situation?
 - Design the delivery system based on the practical realities that universal access to basic telecommunications infrastructure is poor and the distance education systems should rely on print-based forms of distance education delivery.
 - Or design the delivery system from the starting point of using more sophisticated digital ICTs.
 - ♦ In your opinion, should these design decisions be taken at the course design level or the systems design level to ensure success in the future?
- Debate the pros and cons of opposing views with respect to:
 - ♦ In about 200 words argue the case for designing a distance education system that is based on
 - older, tried and tested technologies or digital ICTs,
 - with particular emphasis on the unique requirements of your developing society context.
- Describe the wide range of issues that come into play when designing quality distance education courses, emphasizing the unique requirements of distance education when compared to conventional face-to-face offerings.
- Having read Carr-Chellman, A. and Duchastel, P. (2000) “The Ideal Online Course,” make a number of recommendations concerning on-line teaching (considering cost of provision, quality of the learning experience and the extent that access can be widened in your own context).

Introduction to Module Three

In this module of our course we are going to discuss distance education systems and explore the dynamic interrelationships between subcomponents of the system and the total system.

The module is divided into two units. The first unit will introduce the sub-components of a distance education system. This unit will also examine the relationship between distance education systems and ICTs.

In order to do this, we need to distinguish between the purposes and functions of various technologies within distance education systems, but also learn about the pedagogical distinction between technology and media.

In developing society contexts, universal access to ICTs represents a perplexing challenge. On the one hand we might argue that distance education systems should depend on older technologies like print and radio, thus minimize access problems. On the other hand, we might argue that digital ICTs offer exciting opportunities to overcome other significant barriers associated with distance education in developing societies, for instance, the non-availability of tutors in rural and other remote locations. This unit will consider the pros and cons of both sides of the access argument and examine what the convergence of technology might mean for distance education in developing societies.

Unit 1 concludes with an interactive learning experience relating to the issues that need to be taken into account in making one significant policy decision in setting up a distance education system, i.e. whether and how to incorporate regional learning centers into the delivery system. This discussion should help you to understand the dynamic relationships that exist between and among components of a total distance education system.

Unit 2 remains with the generic theme of distance education systems by examining course design as another key sub-component and sub-system in a distance education system. The purpose of this Unit is to help you develop your understanding of the importance of instructional design in distance education. Three questions will direct your study of this topic:

- What is instructional design?
- In what ways does instructional design in distance education differ from face-to-face situations?
- Why is instructional design so important in distance education situations?

Unit 2 incorporates an instructional design simulation where you will be able to experience some of the complexities of designing good quality distance education courses.

The module contains assignments designed to help you think about and interact with the content, the instructor and other learners. The assignments can also be used for assessment (and grading by your instructor).

To enrich your learning experience and to incorporate a variety of diverse views and opinions about distance education, we have provided print articles related to this module of study. Please, read the articles. They are important, since they highlight basic issues relating to the module and are designed to help you respond to the questions provided.

Below is a list of the readings. We have identified the unit of study within each module that we believe the reading best supports. We will prompt you at appropriate points in the text when you should read the relevant paper. The list is provided here for your convenience, and importantly, to provide you a preview of the module of work.

Module 3 Readings:

Unit 1 “System Design”

Reading 1. “Pedagogic Components” is taken from a UNESCO Institute for Information Technologies in Education (IITE) Moscow 2000 Report, pp. 24–27.

Purpose: Read these pages to become familiar with some of the teaching–learning components you might include in a distance education system. We suggest you pay attention to what technology and media (which are explained in detail later in this study guide) and other system components you might include to support learners. The emphasis is on learning support because much research and experience reports that quality learning–learner support is critical to the success of a distance learning system.

Reading 2 (Optional). Belanger, F., Jordan, D. H., & Jordan, D. (2000). In F. Belanger, D. H. Jordan, & D. Jordan (Chapter 3): *Distance Learning Technologies. In Evaluation and Implementation of Distance Learning: Technologies, Tools, and Techniques* (pp. 35–87). Hershey, PA: Idea Group Publishing.

Purpose: Read this article to become familiar with ICTs in distance education systems. We suggest you pay attention to terms such as computer–aided instruction, Web–based training, and tele–conferencing. Different authors use distinct terms to address the same technology or concepts, so they can be confusing to the reader. As you read, you might discover that you are familiar with and understand the ideas, but that you use different terms for them.

Unit 2 “Course Design”

Reading 1 (Optional). Jarmon, C. (1999). *Fundamentals of Designing a Distance Learning Course: Strategies for Developing an Effective Distance Learning Experience*. In M. Boaz, B. Elliott, D. Foshee, D. Howdy, C. Jarman, & D. Olcott (Eds.), *Teaching at a Distance: A handbook for instructors* (pp. 1–14).

Purpose: Read this article to learn about important issues that are particularly important for designing effective learning experiences.

Reading 2. Carr–Chellman, A. and Duchastel, P. (2000). The Ideal Online Course. *The British Journal of Educational Technology*, 31 (3), 229–241.

Purpose: Read this article to learn about the key issues facing designers of WWW–based university level courses and what the key components of an online course are.

UNIT 1**“Components of a Distance Education System and ICTs”**

In the previous Module, we indicated that the provision of distance education is dependent on a the interrelationships and functioning of a dynamic system. Moore and Kearsley (1996, p. 6) remind us that a systems view is a good conceptual tool that helps us understand and analyse distance education and is a tool that must be applied in the practice of distance education at any level.

A system comprises two or more interrelated elements or two or more subsystems where the behavior of one element of the system will affect or be affected by the behavior of the system as a whole. For example, decisions that are taken by the course design sub-system will have implications for the delivery sub-system. Alternatively, course design decisions will need to take the practical limitations of the delivery system into account. For instance, a course which is designed to make extensive use of computer-mediated interaction can only be effective if students have convenient, affordable access to computers. Furthermore, the institution concerned will need to have the necessary operational management systems in place to manage and monitor the large number of incoming electronic communications in an effective way.

In this unit we will examine distance education from the perspective of a total system. Our purpose is to introduce the concept of distance education system as a dynamic system, a system based on the interrelationships between a number of elements and different subsystems. Therefore, we do not intend to provide a detailed discussion of each component of the total system. It is not possible to learn about the intricate detail of a total distance education system within the constraints of a single study unit, but it is nonetheless important for you to have a basic understanding of the most important elements of a distance education system – including its dynamic nature.

In this Unit a distance education system is described as comprised of the following components or subsystems:

- learning environments (that is where you work, your home, traditional face-to-face school classrooms, and regional distance education-supported Learning Centers)
- interaction subsystems (that is interaction between/among instructors, tutors, counselors, administrative staff and other students)
- delivery subsystems (including, for example, the subsystems necessary to deliver print, audio/visual recordings, broadcast radio/television, computer software, audio-conferencing, video-conferencing and computer networks)
- instructional design subsystems (that is the systems required for designing instruction, media, programs and evaluation systems)
- management/leadership sub-systems

The components listed above are organized in various ways that result in a system that is able to deliver education at a distance. Among the factors that influence the organization are the historical-political context, the educational philosophy of the program planners, the available resources (considering the cost-benefit), who the students are, where the students are and the needs of the students (you might think of this as the market for the educational program).

There is a very close relationship between the distance education system introduced above and the variety of ICTs that can be implemented to achieve the objectives of the different components of the total system. In other words, we can describe ICTs as a “cross-cutting” technology, because they can be found in each of the components of the distance education system above. Consequently, when thinking about distance education systems, we must also think about ICTs and how they relate to the system concerned.

Assignment 1

In Module 2 you learned that the different functions of distance teaching could use a variety of different technologies to carry the instructional message and to support the teaching-learning transaction through various forms of interaction.

In your Book of Readings read – “Pedagogic Components” (2000) from the Analytical Survey compiled by UNESCO’s Institute for Information Technologies in Education (IITE), pp. 24-27 – and jot down in writing your thinking responding to the following questions:

- Describe three distinct ways in which print media can be used to present the content of learning in a distance education system;
- List two asynchronous and two synchronous examples of how audio-visual media can be used in distance teaching. Indicate which of the four functions of teaching introduced in Module 2 are being mediated by your specific examples;
- In what ways can computer technology be implemented in distance teaching systems?
- What are the most important aspects to consider when deciding on the implementation of computers in distance education systems?

From your experiences of the previous assignment, you will see that there is a close relationship between the components of a distance teaching system and different ICTs. In order to help you reflect about this complex relationship between distance education systems and ICTs, we will consider two important distinctions relating to ICTs in distance education.

Distinguishing Among Technological Purposes, Specific Technologies, and Media

You will recall from Module 2 that we defined ICTs as an embracing concept which describes *not only* the actual “hard” technologies (the actual machines), but the concept also includes the people, processes and organizations involved in a wide variety of technologically mediated forms of communication (of which distance education is an example). Furthermore, when analysing distance education systems and ICTs there are two important distinctions that must be made. The first is a *technological distinction* based on differentiating between three main purposes of “hard” technologies (as a subcomponent of ICTs) within a distance education system, namely, the difference between storage technologies, carrier technologies and delivery technologies. The second is a *pedagogical distinction*, which differentiates between technology and media.

Technological Distinction

First, the *technological* distinction focuses on three distinct purposes of the “hard” technologies within a distance education system, and can be classified according to:

- *Storage technologies*: These refer to the hard technologies that are used to store the learning resources before they are distributed to the learners. For example
 - ♦ a warehouse containing pre-printed study guides;
 - ♦ a centralized or decentralized digital database storing digital learning resources that can be accessed from remote locations;
 - ♦ portable analogue storage medium like an audio-cassette or video-cassette; or
 - ♦ portable digital storage medium like a CD-ROM that can store a considerable amount of digital data, but can nonetheless be transported by more conventional technologies like surface mail;
- *Carrier technologies*: Refer to those technologies that are used for “transporting” learning resources or communications between two points. A few examples of carrier technologies are provided below. In each case the carrier technology is displayed in *italics*:
 - ♦ *postal services* for distributing study guides or digital data stored on a CD-ROM;
 - ♦ *copper wire* in the case of a terrestrial telephone call (the word terrestrial is used to differentiate conventional landline telephones from satellite telephones and cellular telephones because these use other carrier technologies for the “carrying” the communication data);
 - ♦ *fibre optic* cable used for broadband connectivity and communication of digital data;
 - ♦ *radio-waves* that carry the messages of broadcast radio or even digital data;

- ♦ *digital satellite* communication systems that are capable of broadcasting digital data which can be used, for instance, for telephony, television and Internet access;
- *Delivery technologies* (including both presentation and interactive technologies) which refer to the devices that are used to playback, receive, display and communicate interactively with people in different locations, for example:
 - ♦ a printed book or study guide;
 - ♦ a telephone handset, either analogue or digital, the main difference being that analogue systems cannot transmit and receive digital data (an analogue handset would not be able deal with Short Message Service (SMS) applications that have recently become popular with cell phone users. SMS messages, could, for example, be used to provide instantaneous feedback on multiple choice type questions;
 - ♦ television set or radio for receiving broadcast material;
 - ♦ playback systems for prerecorded material, for example, video-recorders, standalone, and multi-media computer workstations (including integrated DVD players and CD-ROM players);
 - ♦ examples of delivery (or distribution) technologies, that are interactive, include multi-media computers (for e-mail, desktop video conferencing, computer listservs, chat-rooms and asynchronous discussion forums); audio-conferencing devices; audio-graphic systems, standalone video-conferencing systems and not to forget surface mail and other examples of correspondence;

You are not expected to acquire a detailed knowledge of the technical aspects of different technologies and the examples listed above are simply provided to illustrate the wide array of technologies that can be used within distance education systems. However, classifying ICTs according to their respective technical purpose will enable you to understand the significance of the convergence of technology (which will be explained in the next subsection) particularly for distance education in developing society contexts.

Pedagogical Distinction

Before we can discuss the convergence of technology, we must also briefly consider the *pedagogical* distinction between delivery technologies and media. The delivery technologies carry mediated messages or symbol systems, which we usually call "media" (see Moore and Kearsley 1996, p. 10). The symbol systems refer to the messages conveyed using a variety of storage, carrier and delivery technologies, for example, the *text* and *graphics* in a book or study guide, the *sounds* in audiotapes, the *sounds* and *images* in videotapes or television broadcasts, or the *sounds* and *graphics* that can be used in a tele-conference or video-conference.

For instance, the Internet, comprising a variety of storage, carrier and delivery technologies can convey messages using the symbol systems of text, sound, images (both still and moving graphics) and in a number of cases the user can have considerable control over how the symbol system interacts with the learner, for example, a learner navigating through a virtual reality model of the human circulation system. Similarly, the technology of mail can be used to distribute a variety of media (that is text and images in study guides, sounds on audio cassettes, sounds, images and moving pictures on videocassettes or a CD-ROM sent through the post.)

The specific features, specifications and capabilities of individual technologies will change and evolve as time goes on. However, the basic purposes of storage, transporting and delivery as well as the distinction between these technologies and the media that they carry, will remain the same. Therefore, when analyzing the plethora of emerging ICTs for distance education purposes, it is essential to first establish the specific purpose of the technology within the total communications system, but also to determine the specific media that the technology incorporates as this will direct the pedagogical modes of learning. For example:

- text media requires the pedagogical mode of reading;
- audio and visual media requires the pedagogical modes of listening and looking;
- interactive media requires the pedagogical mode of dialogue.

Access, Convergence of Technology and Corresponding Implications for Distance Education in Developing Societies

Developing societies are faced with the perplexing dilemma of balancing the practical realities of limited access to sophisticated digital ICTs particularly in remote regions versus the potential that digital ICTs can provide regarding the delivery of high quality distance learning in these ICT deprived locations.

Therefore, when designing new distance education systems or improving existing delivery systems, planners are faced with two difficult strategic alternatives:

- 1) to design the delivery system based on the practical realities derived from the levels of access to different ICTs, for example, where universal access to basic telecommunications infrastructure is poor, distance education systems should rely on print-based forms of distance education delivery;
- 2) to design the delivery system from the starting point of using more sophisticated digital ICTs. Then to find sustainable alternatives for ensuring cost effective access to these technologies, for example, to develop a sustainable business model for the implementation of multi-purpose community centers equipped with the necessary digital ICTs in such a way that they operate at sufficient scale to ensure the cost effectiveness of the system. In this example the “learning environment” component of the system plays a significant role in determining strategy because its success would be dependent on the effective implementation of a network of Learning Centers.

Assignment 2

Consider the following questions and write a short essay explaining your view:

- Which of the two strategies above would you recommend for your specific distance education situation and why?
- In your opinion, should these design decisions be taken at the course design level or the systems design level to ensure success in the future?

We believe that the answers to the two strategic questions above are best resolved at the systemic level, that is, at the level of designing a total distance education system. However, at the same time it is difficult to innovate at the total systems level, and very often experimenting at the course design level can result in finding innovative solutions which would not have been possible or thought of when viewed from the perspective of the total system. Again, this is a good example of the dynamic nature of a system where the parts can influence the whole, but at the same time the whole can determine the way the parts interact within the system.

The Realities of Access to ICT Infrastructure with an Emphasis on Developing Societies

Understandably, access to ICTs in developing societies is the most compelling reason why older technologies take precedence in policy discussions on distance education. Table 3.1 below provides information on access to selected ICTs, comparing the indicators for industrialized and developing societies. The data for Sub-Saharan Africa and Southern Asia are highlighted because of the critical nature of the education crisis in these regions of the globe (UNESCO, 2000).

Table 3.1: Selected Information and Communication Technology Indicators

	Developing countries	Industrial countries	Sub-Saharan Africa	Southern Asia
Estimated main lines per 100 inhabitants (1996)	4.5	42.4	1.4	1.8
Estimated cellular subscribers per 100 inhabitants (1996)	0.58	9.17	0.21	0.04
No of radio receivers per 1000 inhabitants (1996)	185	1005	166	88
No of television receivers per 1000 inhabitants (1996)	145	524	35	55
No of PCs per 1000 inhabitants (1996)	6.5	156.3	3 ¹	1.2
Estimated No of Internet users per 1000 inhabitants	0.5	17.9	na	na

(Source: UNESCO 1999 World Communication and Information Report 1999 – 2000)

¹Independent estimate by Jensen (1999: 183) and should be used with caution.

na: not available

Without disregarding the risks of drawing conclusions from arbitrary indicators, for example, in many developing regions it is difficult to draw accurate conclusions from the tele-density ratio, because the use of communal tele-centres is a practice, that is socially accepted, and access that an individual has regarding telephony may be higher than anticipated. Moreover, in developing societies technologies are used in a different ways than is the case in highly industrialized countries. For example, community radio stations can provide valuable health care advice, for instance, on a local epidemic. Typically one member from the remote rural community travels some distance to the nearest phone and contacts the radio station for advice. The radio station would then invite a health care representative or medical doctor into the studio to broadcast relevant advice to the local community precipitated by a single telephone call. The point is that we must understand the limitations of these kinds of indicators, but nonetheless there are some interesting inferences that we can deduce from the figures reported in Table 3.1, for example:

- The tele-density for the industrialized world is 844% more than the tele-density of developing countries. Even when taking into account the fact that a telephone is typically used as a community resource in developing countries, the debilitating potential of *not* being connected is incomprehensible.
- The discrepancy between the cell density of industrialized and developing societies is considerably more than the difference in tele-density. The cell density in industrial countries is 1481% more than the cell density in developing countries. However, there is considerable potential for leapfrogging copper-based landlines because in South Africa, for example, the number of cell phone subscribers has recently exceeded the number of fixed-line subscribers (Nash, 2000, p. 11).
- In developing societies, access to radio receivers is only 18.5%, whereas television receivers are some four percentage points less. The surprising difference is that in developing societies the difference between access to television and radio receivers is only 22%, whereas in industrial countries this difference is 48%.
- In developing societies, less than one percent of the inhabitants have access to personal computers as compared to a figure of about 16% in industrialized regions. The number of Internet users corresponds closely with the figures for access to personal computers and is based on these figures. Consequently, the prioritization of older ICTs for developing societies is understandable.

A Dominant Rational Underpinning Most Open and Distance Learning Policy

The dominant rationale underpinning most open and distance learning policy for development is that, if developing societies are to benefit from the new technologies, they should first be able to access the technology at an affordable cost. Based on the analysis of access to ICTs in developing countries, it is understandable when Yates, for example, concludes that "on both the access and cost criteria, it would seem better to use the older, more tried and tested, technologies like radio" (Yates, 2000, p 10). However, development policy that is primarily driven by the levels of access to ICT infrastructure must also consider the implications of such a strategy. The practical realities of limited connectivity in developing countries is a seductive policy trap, because the magnitude of the problem blinds the vision concerning how the inherent power of digital ICTs can be used to overcome the chasm between restricted access and generating sufficient demand for rolling out sustainable connectivity.

Notwithstanding the difficulties associated with access to technology in developing economies, distance education planners must also consider the costs of not designing for systems that utilize digital ICTs. The highly industrialized economies of the world have made a progressive shift towards a knowledge-based economy — an economy that operates at a global scale for those that are connected. Braga (1998) argues that success in the new economy will be determined by those countries that can rely on the widespread access to communication networks for their companies and citizens; the existence of an educated laborforce and consumers; and the availability of institutions that promote knowledge creation and dissemination.

"Leapfrogging"

Many developing countries could also potentially benefit from this global interaction by using the very technologies of globalization to 'leapfrog' a generation of communications technology (see for example, Knight 1996). Terrestrial wireless technologies combined with satellite data broadcast including plans for more cost effective bandwidth using Low Earth Orbiting (LEO) satellites offer exciting opportunities for developing countries, especially for remote and isolated areas, without having to wait for the role out of

conventional landline communication networks. However, “those who do not have some mechanisms to monitor and understand the internationalization of knowledge are likely to be left out of important spheres of discovery, and they may find themselves less competitive in ways that have major economic and political consequences” (Green & Hayward, 1997, p. 17).

Can Developing Societies Afford to Invest Scarce Resources in Traditional Technologies at the Expense of Modern Digital ICTs?

For this reason, developing societies must consider whether they can afford to invest scarce resources in traditional technologies at the expense of modern digital ICTs. For example, in the medium term it is more expensive to lay down copper wire as the dominant carrier technology in many developing societies, than it is to install fiber optic cable that has far superior bandwidth capabilities. Initially, the costs of installing fiber optic cable are higher than copper wire, however the maintenance costs of copper wire networks far exceed the operational costs of fiber optic networks and have added disadvantage of severe bandwidth limitations. As demand for bandwidth increases over the long term — even in developing societies — those policy makers who have opted for older technologies will have to incur additional costs to upgrade to more sophisticated carrier technologies.

Skeptics will argue that it is pointless to invest in sophisticated broadband technologies when there is virtually no existing demand for bandwidth intensive applications, such as multi-mode, multi-media distance education. In many respects this is a vicious circle, because if you don't create the infrastructure for broadband connectivity, it is very difficult to increase the demand for broadband applications. Failure to proactively increase the demand for broadband applications unfortunately feeds the argument to rather support older technologies because of the access problem.

Notwithstanding the problems of access to technology in developing societies, it is worthwhile to think about Braga's (1998) assertions that technological developments are rapidly eroding economic and technical barriers to entry into communication networks. Developing countries can, for example, leapfrog stages of development by investing into fully digitized networks rather than continuing to expand their outdated analog-based infrastructure.

There is evidence that, with government commitment and determinism at policy level, developing countries can achieve the ideals of leapfrogging. Spending on ICTs grew more rapidly in developing regions than in high-income countries during the 1992-1997 period. Yunus (1998), for example, reports on the success of the 'wireless women' initiative in Bangladesh. Rural women were given a \$350 loan from the Grameen Bank to purchase a cellular telephone and to cover the costs of training and repair services. The 'wireless women' have been able to earn a profit of \$700 per annum as mobile telephone operators, which is significantly more than the average \$250 annual per capita income in Bangladesh.

A Far Greater Problem Than Physical Access to Technology

Assuming that access to ICTs were suddenly no longer a limitation, what would the new technology provide access to? Currently, there are very few contextually relevant resources that are available for developing societies. The problem of sustainable access to digital ICTs in developing societies will not receive the impetus it requires unless sufficient demand for access to the technology can be generated. In this respect, it is argued that Distance learning may be capable of generating the critical mass required to sustain the provision of sustainable digital ICT infrastructures in a variety of other applications.

The most significant advantages of digital ICTs in developing societies are related to:

- the pedagogical advantages associated with convergence of technology among computing, telecommunications and advances in the cognitive sciences, when purposefully designed from a total systems view of distance education, particularly for asynchronous delivery systems;
- the portability and interoperability of digital information that enables more cost-effective delivery over a variety of ICT platforms from the same digital source.

Each of these will be discussed in the paragraphs below.

First, from a pedagogical perspective, multimedia can present information in more ways than text or speech and, consequently, has huge potential for enhancing the quality of instruction. Multimedia also facilitates the presentation of information in numerous ways, thus allowing greater choice for learners to select their preference for learning (see for example, Bates 2000). For example, a learner could view a video clip with a voice-over explaining the four strokes of a combustion engine. The same learner could then print out a document containing four illustrations of the four positions of the piston, with corresponding text next to each picture explaining the meaning. This graphic representation with a corresponding verbal summary next to the graphic is what Mayer, Bove, Bryman, Mars, and Tapangco (1996, p. 66) call a multi-media summary. Alternatively, the multi-media print version could be used in applications where cost-effective connectivity is a problem. Assuming that voice-over of the video clip in our combustion engine example was stored in digital format, it would be relatively easy to transfer this audio clip onto an audio cassette or store it as a voice-mail message for retrieval by cell phone. Therefore, in our example of the multimedia summary, it is also possible to provide the student with a printed copy of the four graphics with an audio recording explaining the different graphics, without incurring additional development costs for multi-mode delivery systems.

These examples illustrate the capabilities of digital information to be delivered over a variety of delivery platforms (for example, Internet, print and audio cassette) with relative ease. However, if this learning material were not digitized, the costs of recreating the same material for different platforms would be considerably more. Digital ICTs have unlimited potential for providing cost-effective multi-media learning opportunities while using a variety of delivery platforms.

This kind of discussion will remain idealistic unless we can find substantive and sustainable reasons to promote digitally based systems appropriate for distance education in developing societies. Digital technologies are replacing analogue technologies in many spheres of ICTs. One of the most important reasons for shifting our focus to the potential of digital ICTs concerns the concept of “convergence” of technology. The *convergence of technology* refers to the meeting place between advances in telecommunications and advances in computing that are made possible by storing and communicating data in a binary digital format that is increasingly becoming more interoperable.

Digital technology is capable of dealing with voice, video and computer data using a single binary coding system. Therefore, digital ICT infrastructure can carry voice, video and data over the same network; whereas, in the era before convergence, independent carrier technologies were necessary for different technology types. The convergence of technology also means that audio, static images, dynamic images, video and text can be combined on a single delivery and carrier technology such as the Internet. Convergence opens up huge opportunities for developing countries to accelerate the rollout of connectivity (Bond, 1997), because the duplication of networks for different kinds of media can now be avoided. (Remember that before convergence media was carrier technology dependent. Previously a telephone call required an independent network – today, because of convergence, media rich digital data can be transported over the same telephone network.)

One of the significant advantages of binary digital information is that it is relatively easy to find ways of ‘down-sizing’ bandwidth intensive material. The convergence of technology also facilitates the communication of digital information over a wide variety of storage, carrier and delivery technologies. For example, the same video clip stored in binary digital format can be transported over a variety of *different* carrier technologies, for instance, copper wire, radio waves, fiber optic cable and microwaves, or by conventional surface mail when stored on CD-ROM or DVD. Moreover, the video clip stored in digital format can easily be converted into analogue formats and stored on a conventional videocassette. What is more, the same digital information can be accessed from a variety of different playback media. For example, a digital video recording can be viewed on a multi-media personal computer, broadcast on terrestrial or satellite television system viewed from a DVD player or even converted into conventional analog video-cassettes.

The significance of convergence for developing societies is that it is relatively easy to adapt digital materials according to available and existing infrastructure, without incurring additional development costs. This is something that was not possible with previous technologies. Distance education strategists, who plan and design distance education systems that store learning resources in interoperable digital formats, will have far

greater flexibility regarding the most effective choice among a variety of carrier and delivery technologies in a variety of different situations. It is now possible to plan for the distribution of a video insert in a distance education system that can use a variety of carrier technologies, simultaneously in one system. Also, the play back media can now be selected with greater flexibility according to available infrastructure and cost structures of the specific situation without necessarily compromising multi-media pedagogy. In summary, unprecedented flexibility in distance education systems is becoming increasingly possible, and developing societies must plan for these futures.

The potential of digital ICTs for education is often undermined, when policy makers do not understand the functioning of a distance education system. In these examples, digital ICTs are merely used to distribute traditional classroom teaching to remote sites. (This is one of the significant failures of the African Virtual University initiative, because under the current delivery model, it is extremely difficult to scale-up the system to the levels where broadcast satellite becomes cost effective). Consequently, modern technologies are often used to entrench artisan-based traditions of professing knowledge, rather than capitalizing on the huge pedagogical potential of ICTs in education. When compressed video was introduced to education, “little deviation from the instructor-led model of classroom learning” (Fontaine, 2000, p. 14) was achieved; the only difference was that learners could now listen to their instructor from a different place. The problem with this ‘more-of-the-same’ strategy — despite the fact that digital ICTs enable us to transcend geographical distances — is that it does not recognize the huge transformational potential in pedagogy that is now possible because of the convergence among telecommunications, computing and new developments in the cognitive sciences associated with digital ICTs.

With a Single Medium It Is Now Possible to Communicate Around the Globe

The convergence of technology in recent years and the power of digital technology now makes it possible to communicate with any place around the globe using voice, text, images and video on a single medium. It is conceivable that multi-modal, multi-media learning resources and their corresponding potential for pedagogical superiority can be distributed to remote locations, where there is currently no existing ICT infrastructure in a cost effective way. Fontaine (2000, p. 14) argues that digital ICTs may be able to deliver a higher quality of teaching and support, and she goes on to say that the “improvement may be even more pronounced in poor, isolated schools in developing countries, where infrastructure challenges might suggest otherwise”.

To illustrate this point: satellite technology is still expensive, but with innovative planning and significant scale this technology can also be effectively utilized in the developing country context. For example, satellite technology could be used for broadcasting digital data, particularly in times of low demand for satellite bandwidth, like late at night. Digital multimedia materials could be downloaded to a vast network of technology hubs using inexpensive satellite dishes and electricity generators in very remote regions. To expand access from the technology hubs, off-line technologies could be used for the ‘last-mile’. For example, a number of mobile “access-providers” equipped with a multi-media portable computer, a digital data projector, a motorcycle or other appropriate means of transport would be able to bring media rich learning resources to remote villages that do not have electricity, let alone Internet connectivity. It is also possible that the cost of communication using new low-orbiting satellites will be more affordable.

Planning Must Be Holistic

The main point here is that high bandwidth connectivity in developing countries can be achieved on the condition that planning is done from a holistic perspective. Convergence of technology also demands convergence at the planning level between key partners, including, for example, the following:

- tele-communication ministry;
- education ministry;
- public education providers at all levels of the system;
- private sector.

The huge advantage of modern DL which is based on digital ICTs is that it may be able to generate the critical mass required for initial investment in a national infrastructure. In societies, where the demand for education

is high, distance education strategies will be able to help ensure the sustainability of the technology by generating substantive levels of traffic.

Unfortunately, educational systems are notoriously resistant to change (Osin, 1998, p. 2), particularly when the change involves a shift away from traditional instructor-led pedagogy associated with classroom teaching. Dhanarajan (2000) suggests that the inertia for change in education will originate from political forces and commercial interests and not education. He goes on to say that these lobby groups “believe that the technologies of today and those that are emerging will transform the teaching landscape to that extent where it will be neither economical nor socially acceptable to cling on to ancient traditions” (p. 11).

There is a dire need for innovation in educational strategies for developing societies, and DL is likely to play a prominent role in these evolving strategies. Developing societies could be doomed if they attempt to duplicate the education systems of the North, particularly when considering that the systems being duplicated were established in a world that was radically different from the world we live in today. It is the responsibility of developing societies themselves to design delivery systems that are appropriate for local contexts.

Assignment 3

This assignment is based on the basic structure of a debate where you get the opportunity to interrogate the pros and cons of opposing views from both sides of the fence. In a workshop situation, your facilitator may divide you into two groups to carry out this activity

Step 1

Assume that you are preparing for a debate. In about 150 words list the most important reasons you would use to argue the case for designing a distance education system that is based on older, tried and tested technologies, with particular emphasis on the unique requirements of your developing society context.

Step 2

In about 150 words list the most important reasons you would use to argue the case for designing a distance education system that is based on digital ICTs, with particular emphasis on the unique requirements of your developing society context.

Step 3

In about 150 words, list the factors or rebuttals you would use to challenge the arguments presented in Step 1 above.

Step 4

In about 150 words, list the factors or rebuttals you would use to challenge the arguments presented in Step 2 above.

Having discussed the opportunities and threats for developing societies to implement digital ICTs within distance education systems, this unit will conclude with an example of planning for a Distance Learning Center.

Considerations When Designing a Distance Learning Center

In this subsection, you will be asked to use your own experience and knowledge of your local situation to consider a number of pertinent issues when taking decisions about the inclusion (or not) of a *distance learning center* within a distance education system. Apart from thinking about the factors that you would take into account when designing a *learning center*, you will also reaffirm the dynamic relationships that exist between subcomponents of the system and the system as a whole.

Earlier in this Unit, *learning environments* were identified as a subcomponent of a distance education system. Many distance education systems have incorporated the feature of regional learning centers within their respective systems. However, the operation in different systems depends on their specific purposes and local conditions; these centers could be used for a variety of purposes. For example (you may wish to add a few ideas to the list):

- an administration point where students can register and receive study material;
- the provision of physical library facilities; the provision of learning spaces where students can gather to work together;
- the provision of different technologies, such as a computer laboratory, standalone video-conferencing equipment, tele-conferencing equipment;
- facilities for face-to-face sessions;
- a location for student support where tutors are based;
- the provision of facilities for practical work, such as laboratories or experiment kits;
- ...
- ...
-

Assignment 4

The purpose of this assignment is to think critically about the design of a distance learning center by taking the unique requirements of your own distance education situation into account.

Imagine: You have been instructed by the management of your organization to investigate the incorporation of Learning Centers into a new distance education delivery system that is being designed for your country. Before making your recommendations consider the following questions:

- *Would your Learning Centers provide administrative services, and if so, what administrative services would be provided?*
- *Would your Learning Centers make provision for any of the functions of distance teaching (see Module 2), and if so, which functions will be provided?*
- *How many Learning Centers would your distance education system require?*
- *Where would the Learning Centers be located geographically within your system?*
- *Taking the population distribution of your region into account, what is the average distance a learner might have to travel to get to the Learning Center?*
- *If you decided that your Learning Centers provide for teaching functions, would visits to the Center be compulsory for all learners, and if so, how does this affect students who are unable to come to the Centers?*
- *Who carries the costs for the physical facilities and staff at the various centers?*
- *Are there opportunities for sharing facilities among different education providers, or opportunities for partnerships with private enterprises?*
- *How would the Learning Centers communicate with the central system?*
- *What categories of staff are required at the Learning Center, for example, administrative, lecturers, tutors, librarians, etc?*
- *How many staff do you think will be required at each Center?*
- *What hours or times that the Center will be open for students, and what are the implications for staffing?*
- *What physical facilities will be provided at each Center?*
- *What technological equipment and resources will be required at each Center?*
- *Are there any additional questions and answers that you feel should be added to this list?*

You may have experienced difficulty with this assignment, particularly, in the absence of detailed information, such as the geographical distribution of your student population, the actual costs relating to salaries and resources for the Center, the budget ceiling, etc. However, we think that you would agree that decisions concerning dimensions of a distance education system are complex and that a detailed

study is necessary before a system can be designed in its entirety. Moreover, you would have discovered that many decisions relating to the design of a learning center are dependent on the nature of your distance education delivery system, once again illustrating the dynamic nature of a distance education system.

Each distance education system must be able to adapt to local conditions in order to be effective. For example, in the case of the British Open University, their decentralized system of student support works very well because of the demographics of the country and the availability of tutors where they are needed. From the inception of the British Open University, there has been a large supply of qualified part-time tutors drawn from the wide distribution of lecturers teaching at the residential campuses throughout the United Kingdom. Furthermore, the United Kingdom does not have to deal with complexities of vast geographical distances regarding the distribution of tutors.

However, many developing countries have to overcome a different set of problems, and therefore, delivery systems need to be adapted and designed for local conditions. In Africa, for example, the majority of the underserved population in tertiary education — as high as 60% — reside in rural and remote areas, and distance education systems on the continent have to overcome vast geographical distances. It is not uncommon in rural Africa that a student would have to walk vast distances from his/her local village to get to a communication point such as a telephone or a learning center. Furthermore, it is usually difficult to find suitably qualified tutors in remote locations, particularly in the area of the natural sciences. Fortunately, it is technically possible to use digital ICTs for linking remote students with tutors, irrespective of their geographical location. This is where the application of wireless and satellite communications technology could have significant benefits for remote students, as they can be implemented without having to wait for terrestrial communications networks. However, costs are prohibitive and sustainable delivery systems must be designed.

This raises the interesting question of whether the provision of ICT infrastructure falls within the ambit of the core business of distance education institutions. Clearly, without this, infrastructure distance education would not be able to function properly. From a purely managerial perspective, the provision of ICT infrastructure is not the core business of an educational institution. Consequently, alternative approaches must be sought to deal with the ICT infrastructure challenges. This is not to say that distance education institutions do not have a responsibility to promote improved access. They could, for example, play a leadership role in bringing the education sector together in initiating a national shared infrastructure initiative. Alternatively, large distance education systems could generate income streams for small businesses that could provide access to a variety of technologies at regional level. Ideally, this would be a model where the educational institution pays local providers for a technology service as opposed to shifting the cost onto the learners.

It is not possible within the confines of this Unit, to elaborate in detail how such systems could work. The important message is that solutions can be found that are innovative, cost-effective and sustainable. These solutions will nonetheless require an understanding of the total distance education system combined with a devoted commitment to find appropriate solutions that do not compromise the quality of the pedagogy or begin to limit access to distance education.

Unit Closing

By now you have likely seen that selecting a specific technology before you have carefully planned your entire distance education system is not advisable. You might think of it this way. Choosing the technology first is about the same as choosing the furniture for your new house, before you have even draw the plans for it. Likely, by buying the furniture first you would end up wasting money, perhaps, purchasing a bed that does not fit your bedroom or curtains/drapes that are too small to cover the windows.

We hope that your experiences in this Unit have demonstrated the levels of thinking, planning and decision-making that are required when designing effective distance education systems.

We believe the most important thing we can leave you with is an awareness of the existing possibilities and an ability to discern what would be the most suitable arrangement for your unique educational situation.

To summarize in this Unit you:

- thought about the components of a distance education system and their interrelationships with other components in the system;
- thought about how ICTs are related to different components of a distance education system by distinguishing among storage, carrier and delivery technologies as well as distinguishing between technology and media;
- thought about which of two strategies:
 - 1) designing the delivery system based on the practical realities that universal access to basic telecommunications infrastructure is poor and the distance education systems should rely on print-based forms of distance education delivery, or
 - 2) designing the delivery system from the starting point of using more sophisticated digital ICTs you would recommend for your specific distance education situation and explained whether these design decisions be taken at the course design level or the systems design level to ensure success in the future;
- thought carefully about the opportunities and challenges for developing societies when opting for older technologies or promoting systems that use digital ICTs more intensively;
- thought about the dynamic nature of a distance education system using the decision to implement a learning center as a case study of this relationship.

Now, you are ready to learn more about Course Design. So, please, move on to work through Unit 2.

UNIT 2

“Course Design”

In the previous Unit we considered a number of issues relating to the design of a total distance education system. In this Unit we will focus on some important aspects of course design in distance education. You will recall that instructional design is one of the sub-systems of the total distance education system, so we will continue with the generic theme of this module, namely, systems design in distance education. Instructional design for distance education is a highly specialized field and it is not the intention of this unit to provide training in the skills of instructional design for distance education. Rather, we will simulate a few instructional design decisions so that you can experience the kinds of issues that arise in course design for distance education. The purpose of this Unit is for you to develop an understanding of the importance of instructional design as a sub-component of a distance education system. To achieve this objective we must attempt to answer the following questions:

- What is instructional design?
- In what ways does instructional design in distance education differ from face-to-face situations?
- Why is instructional design so important in distance education situations?

Assignment 1

The purpose of this activity is to reflect on your own experiences of face-to-face teaching either as an instructor or student. This reflection will assist us in answering the three main questions above. Consider the following and jot down your responses:

- *Try to remember an outstanding teacher or instructor that you have experienced as a pupil or student. In your opinion, what would you say was the most important aspect of this person’s teaching that made him or her an outstanding teacher?*
- *Assume that you have been asked to present an interesting topic, with which you are familiar to three different audiences: (a) a group of first-year students studying English composition; (b) a presentation to a group of educational experts at an international conference; and (c) a professional development workshop to faculty members and professors. In what ways do you think your presentation methods would differ for the three audiences?*
- *In your opinion, how important is training in instructional methods for university instructors at face-to-face institutions?*

Clearly, your answers to each of these questions would differ considerably from some of the things we have been thinking about, but here are some of the answers we have thought about:

- 1) The characteristic that stands out for many of us was the ability of the instructor to present interesting yet compelling lessons, that intrigued the learners in such a way that the learning experience was meaningful, but at the same time relevant to our immediate situations. There was clarity about what we were expected to learn, and we felt that assessment strategies focused on measuring what we had learned as opposed to trying to measure what we had not learned. In summary the learning experience was enjoyable, but at the same time we had a sense that what we were learning was valuable.
- 2) Clearly, the different audiences would determine the pitch of the presentation by taking into account the anticipated prior knowledge of the audience. Furthermore, each of the presentations has a different purpose and our group felt that a presentation at a conference has a different purpose from presenting a professional workshop, which would also affect the presentation. There was some interesting debate about the tendency of concentrating more on presentation skills for an audience that would arguably be more conversant with the theoretical requirements of good presentation. At

the same time the group questioned the “ethics” of concentrating more on the presentation skills for a professional audience, when compared to the first-year students.

- 3) In an ideal world, we all agreed that training in the competencies of instructional methodology is an important objective for the professional development of professional educators. However, we recognized the paradox of the real world that a qualification in instructional methodology is rarely a prerequisite requirement for appointment at most higher education institutions.

There are instructors that have the ability to support and promote the learning process better than others. The art of good teaching must, therefore, be dependent on a set of competencies and skills, which can be improved through professional training in instructional methodology including instructional design. This brings us to the question: What is instructional design? Instructional design is the art and competence of being able to find the balance between what to teach and how to teach it, taking into account our knowledge of how people learn. The “what” of teaching is an important dimension, because understandably you would use different approaches to teach Mathematics when compared to Philosophy. The demands of the learning task will necessarily influence the way different disciplines are taught, thus emphasizing the importance of subject expert knowledge in instructional design. The “how” of teaching encompasses the full range of instructional methods that can be used to promote quality learning.

The resultant interaction between the “what” of teaching and the “how” of teaching in specific teaching situations is called an instructional strategy. Therefore, instructional design encompasses the design, development and implementation of effective instructional strategies. Over the years this area of academic interest has developed into a discipline of study with origins in applied psychology and educational theory.

Assignment 2

Think about presentations that you have given in a face-to-face situation and jot down the responses to the following questions.

- *How did you assess whether the presentation was going well or not?*
- *In the past, have you adapted what you originally planned to say based on the feedback of the audience?*
- *In situations when you were presenting a course or a series of presentations, have you found it necessary to adapt subsequent presentations because of your interaction with the audience in prior presentations?*

Anybody who has had the experience of standing in front of an audience or group of students knows when a presentation is going well or not. Simply observing the body language of your audience or the puzzled looks that become clearly evident, when you begin talking over the heads of your audience, are painfully observable indicators. Should the presentation include opportunities for dialogue between the presenter and members of the audience, it is relatively easy to assess whether the audience is with you or not. In situations where a presentation is not received well by the audience, on-the-spot adaptations can easily be made. Moreover, in face-to-face situations, which include a number of subsequent presentations, presenters will inevitably adapt their subsequent presentations based on feedback from the group.

In distance education the situation is very different, particularly, in asynchronous forms of delivery. In asynchronous distance education situations, the instructor does not have the advantage of being able to adapt “presentations” based on the non-verbal and verbal feedback of the audience. The entire distance education course is usually planned in advance, and instructors do not have the advantage of being able to adapt individual “lessons” or “lectures” during the presentation of the course. Furthermore, in large single-mode distance education institutions, because of the characteristic division of labor, it is not unusual to find that the lecturer, who developed the materials, is not necessarily the same person who teaches or delivers the course. Also, distance education student populations tend to be more heterogeneous than face-to-face institutions.

However, a similar course at a distance education institution would attract learners ranging from school leavers to individuals that have retired; people who are in full-time employment with family commitments to

those who are unemployed with a diverse set of motivations for enrolling on the course concerned; individuals from the local society to those with “alien” backgrounds when compared to resident culture. This poses considerable challenges for the design of a course that will be meaningful for the majority of the learners. One of the interesting features of an asynchronous distance education course is that the quality (good or bad) will be consistent for current and subsequent groups taking the same course. Asynchronous distance education courses are not influenced by the subjective influences of the instructor on the specific day of the presentation. Furthermore, distance education materials are open to scrutiny by anyone who sees them, and it is difficult to hide the idiosyncrasies associated with face-to-face presentations behind the walls of the lecture theatre.

Clearly, there are significant differences between face-to-face lectures and distance education courses, and this places higher demands on the instructional design of distance education materials. To illustrate some of these differences the following assignment attempts to simulate typical instructional design decisions in a distance education situation.

Assignment 3

The purpose of this activity is to simulate typical distance education design decisions. Imagine you are required to think about a distance education development that you would like to implement in the near future. This is a long assignment of about 600 to 800 words, but it has been subdivided into a number of steps.

Please, remember that you are not expected to take definitive design decisions that will compare with those of experienced distance education designers. The main purpose of this assignment is to raise awareness of the wide range of issues that come into play when designing quality distance education courses, thus emphasizing the unique requirements of distance education when compared to conventional face-to-face offerings. To enhance the authenticity of this experience you should begin by specifying the context.

Step 1: Delineate the context.

- *Aim: What is the main aim of the course you would like to develop, in other words, what must the students be able to do after taking the course?*
- *Course: Jot down the area of expertise or subject of the course you are planning to develop. Remember to specify the level, for example, secondary level, tertiary education or professional development.*
- *Students: Who is the course planned for? List the general characteristics of the students that will take your course. Think about prior knowledge and experience, employment status, geographical location, access to various types of technology, time available to work on the course taking personal commitments into account, etc.*
- *Institutional context: Will an existing distance education provider, a non-governmental organization or a new provider deliver this course? What existing infrastructure does this institution have regarding human and physical resources to design, develop and delivery the course?*
- *Timeframe: When must this course be presented for the first time? Is there enough time to develop a course of acceptable quality?*

Step 2: Decide on your distance education delivery model.

- *You will need to consult what you have learned in Module 2 to carry out this step. What delivery system would be most appropriate for the context you explained in Step 1 above by thinking about the following:*
 - *distributed classroom model where you relay a classroom situation to remote locations using interactive ICTs;*
 - *independent study model where students are provided with a variety of learning resources such as a study guide, audiocassettes, videocassettes, prescribed readings and can work independently of **time** and **pace**.*
- *Will this course be delivered by a dual/parallel mode institution or by a single-mode distance education institution?*
- *Will the course be delivered predominantly in the asynchronous or synchronous mode?*

Step 3: What is the extent of the envisaged development? For example:

- *Are you planning a new course or will you be revising an existing distance education course?*
- *Will the content experts develop the course independently, or do you plan to use a professional development team involving people with expertise in instructional design, graphical design, multimedia experts, etc? (To give*

you a sense of the time required, no more than four to five pages of interactive learning text can realistically be developed in an eight-hour working day).

- *Does the curriculum for the course exist or must the curriculum still be developed?*

Step 4: What approach do you plan to use for the teaching materials?

- *Wrap-around approach: This is where the learning resources (study guide or electronic guide) are developed around existing published resources (text book or compilation of readings). Less time is required for development, but course developers have limited control over the actual content. Developers must also consider the risks of text books going out of print and the general availability of the prescribed resources. There is also the question of purchasing costs of external resources.*
- *Standalone package: Here, all the learning material is developed in house. Developers have more control over the content, but do require considerably more development time. In certain subject areas, it is important for learners to be exposed to “authentic” texts, for example, reading actual court manuscripts in the training of legal professionals.*
- *Integrated approach: This approach combines the advantages of both the wrap-around approach and stand-alone approach, however the disadvantages are also combined.*
- *Remember, if the course plans to incorporate previously published resources, the institution must negotiate for copyright permission to use these materials. This can add to the cost of the development and the time for arranging copyright permission.*

Step 5: What type of instructional design approach do you plan to use for your development?

- *Generative approach: In this approach the instructional design concept is developed before any learning resources are developed. It is a top-down philosophy where decisions regarding the structure of the course, teaching devices to be used, size of the individual study units, etc. are decided upon before the development of resources commences. Developers must then develop according to the predetermined design and assumes that the developers have a reasonable knowledge of instructional design.*
- *Post-development model: In this approach content experts develop materials and the pedagogic elements which are then incorporated into the learning resources after the content has been developed. This approach does not necessarily demand a high level of instructional design expertise from the content experts, but it is difficult to integrate effective instructional design strategies after source materials have been developed.*
- *Recursive approach: The instructional design process is carried out as a reiterative process for the duration of the development. Revisions to the teaching design are made as the development progresses. This approach usually requires the involvement of a team incorporating subject experts, instructional designers, multimedia experts, graphic artists and editors.*

Step 6: Additional practical considerations. There is a range of practicalities that must also be considered when designing and developing distance education materials, for example:

- *Have you considered the levels of knowledge and experience of the developers in terms of distance education theory and practice, instructional design, linguistic design, visual design and project management?*
- *Have you considered the range of media that will be incorporated into the design and how these will be integrated into the learning package? Are these a) affordable? b) necessary? c) available? and d) do you have the necessary expertise to promote effective integration of the different types of media?*
- *What mechanisms of student support have been planned for your course?*
- *Have you considered how the development will be scheduled? (Quality distance education resources can take between 75 and 300 hours of development and production time for **each** hour of learning depending on the types of media employed).*
- *Have you considered an appropriate assessment strategy and system for the course?*
- *Have you determined the development costs for your course taking aspects like the anticipated shelf-life of the course and number of potential enrolments into account?*

This is an abridged list of considerations that must be taken into account when designing and developing distance education materials. The specifics of instructional design have not been included in this assignment, for example, whether a behaviorist, cognitive, or constructivist design philosophy will be employed or the types of instructional devices to be included, for instance, advance organizers, graphic organizers, types of activities, etc.

We have used similar assignments in professional development workshops and participants usually find this activity to be difficult and demanding. Therefore, if you struggled with aspects of this assignment, you can rest assured that you are not alone. This assignment does create confusion, but at the same time does simulate the realities of instructional design in distance education – a messy, diffuse and complex process. Fortunately, in the early design phases you can experiment with alternatives, because at this stage you can afford to live with mistakes. However, after implementation you have to live with them.

Having worked through the previous assignment, you would, no doubt, have identified a number of significant differences between the design of face-to-face presentations and the design of quality distance learning experiences. The generic process of instructional design is usually classified according to the following sub-phases:

- Situation analysis which involves a detailed analysis of the characteristics of the learners for the course and the subject specific demands of the learning task.
- Aims and objectives which involves the process of developing the aims and objectives of the course. In simple terms it attempts to answer the question: What must the learners be able to do after completing the course?
- Structuring and sequencing where decisions are taken regarding the best way to organize and sequence the learning materials so as to promote understanding in accordance with the specified learning objectives. In distance education it is particularly important to pay special attention to calculating the workload. Very often, distance education courses risk including too much material, because they are not limited by the constraints of physical teaching time in the classroom.
- Learning materials development refers to the processes of developing the actual materials, including student activities and the assessment system according to the design derived from the previous phases.
- Evaluation is the subsystem concerned with measuring the effectiveness of the materials that are being developed. It includes both developmental testing where materials are piloted with a small group of students, but also more elaborate product evaluations, once the course has been completed.

The generic phases of instructional design listed above can be found in both face-to-face and distance education forms of provision. However, the instructional design process is considerably more demanding in the distance education context. Largely because the entire course must be developed before registration and the incorporation of a variety of ICTs that are essential in distance education, necessitates a range of specialist skills that are not ordinarily required in face-to-face situations.

To illustrate some of the implications for instructional design when faced with different delivery technologies, let us work through the last assignment of this unit.

Assignment 4

Read the following paper included in your prescribed reading list – Carr-Chellman, A. and Duchastel, P. (2000). The Ideal Online Course. The British Journal of Educational Technology, 31 (3), 229-241 – and respond to the following question.

In this paper the authors make a number of recommendations concerning on-line teaching. Based on your knowledge of Module 1, Module 2 and what you have learned in Module 3, identify the four most important recommendations. In about 300 words, take each of the four recommendations and explain what the implications of the respective recommendation is for:

- *cost of provision;*
- *quality of the learning experience;*
- *extent that access can be widened in your own context.*

Unit Closing

Our main purpose in this unit was to present the importance of instructional design as a sub-component of a distance education system. You learned that the generic process of instructional design contains the same phases (situation analysis, aims and objectives, structuring and sequencing, learning materials development,

and evaluation) whether face-to-face or distance education, but that design in distance education is generally more demanding.

To summarize in the second unit of Module 3 you have:

- reflected on your own experiences of face-to-face teaching either as an instructor or student, considering the how instructional design differs in distance education situations when compared to face-to-face presentations;
- described the wide range of issues that come into play when designing quality distance education courses, emphasizing the unique requirements of distance education when compared to conventional face-to-face offerings;
- made a number of recommendations concerning on-line teaching (considering cost of provision, quality of the learning experience and the extent that access can be widened in your own context.)

Now, you are ready to think about teaching at a distance with respect to the distance educator's roles and skills. You will also read about best practice in distance education. We hope you will find the next Module of interest.

MODULE 4

Teaching in Different Distance Education Systems with Special Emphasis on the Effective Integration of ICTs

Goal

For you and other learners to develop an understanding of how the roles and functions of distance educators may differ from face-to-face teaching situations depending on the specific distance education delivery system and the types of ICTs used in the system. This has direct implications for the skills, competencies, and professional development of distance education practitioners.

Objectives

After studying Module Four, you will be able to:

- Describe the academic tasks and administrative tasks of the teacher in teaching at a distance by comparison with teaching face-to-face.
- Having read the following article “Are We All Managers Now?” (Black, 2000), explain in about 75 words why there is a “blurring” between the boundaries of clerical, administrative and academic functions in the dual-mode distance education system when compared to face-to-face delivery models.
 - ♦ In about 50 words, list the functions that administrative staff in this dual-mode system carry out which would traditionally be considered “academic” in face-to-face systems.
 - ♦ In about 50 words, list the functions that academic staff in this dual-mode system carry out which would traditionally be considered “administrative” in face-to-face systems.
 - ♦ In about 100 words, identify the differences in the roles and functions of the distance educator in this dual mode system compared with the roles and functions of the distance educator in a large single-mode distance education provider.
- Having read “The ITESM Virtual University: Towards a Transformation of Higher Education” by Perez (2001),
 - ♦ In about 100 words, provide a brief description of the two systems that preceded the Virtual University initiative by completing the table provided.
 - ♦ In about 150 words, provide a detailed description of the Virtual University delivery system currently being used by the Monterrey Institute of Technology and Higher Education by using the table provided.
 - ♦ In about 200 words explain how the evolving Virtual University model at the Monterrey Institute of Technology and Higher Education has changed the roles and functions of the teachers and students respectively.
 - ♦ In about 100 words identify which model (author-editor or course-team) you would recommend for your own specific distance education situation. Justify your decision by describing why you chose the model you did and by listing the potential risks you face with your decision.
- Having read Willis’ (1992) “Strategies for teaching at a distance,” in about 250 words list the ten most important skills that your distance teachers would need to acquire in order for a synchronous model of delivery to be effective in your situation.
- Having read Olcott’s (1999) “Instructional Technologies, Part Two - Strategies for Instructor Success: Selecting and Using Distance Education Technologies,” respond to the following questions:
 - ♦ In about 200 words list the reasons why you have rejected the implementation of the two “unsuccessful” technology applications taking your local distance education situation into account.
 - ♦ In about 200 words list the implications for skills training of the staff involved in your distance education context for the technology application you have recommended.

- Having read “Faculty: The Neglected Resource in Distance Education” by Dillon and Walsh (2002), list the factors which you consider to be barriers to the success of effective staff participation as well as the factors you believe are critical for successful participation by staff in distance education initiatives.
- Having read the article – Evans, T., & Nation, D. (1998). Research and Staff Development in Open and Distance Education. In Latchem, C., & Lockwood, F. (Eds.), *Staff Development in Open and Flexible Learning* (pp. 45-53). London: Routledge Studies in Distance Education – write a short essay (about 100 words) describing a project you might do with respect to your own personal professional development that shows you have blended both research and critical reflection on your own practice. (For example, you might decide to do an action research project as described on p. 51.)

Introduction to Module Four

Welcome to Module 4. To have reached this point in the course, you have made tremendous progress, and should be proud of your efforts. We hope you can relax and enjoy your continued reading, thinking, and interaction. There’s more to learn.

In this fourth module our focus shifts from the systemic issues of distance education to the practicalities of teaching in distance education, paying special attention to applying ICTs.

The module is divided into two units. The first unit investigates how the roles and functions of the distance teacher are influenced by the delivery system and ICTs that are applied within the system. We will also examine how variations in the composition of design and development teams will affect the roles of the distance teacher.

The second unit describes the practical implications for specific distance teaching skills depending on the choice of instructional technology. The unit also considers the practicalities and skills associated with determining the workload of in distance education courses. You will be encouraged to think about the skills that are needed to make the right technology choice in distance education as well as ways in which to promote high participation levels in your distance education programs. And to end the unit you will be asked to consider how research and personal staff development in the form of critical reflection might influence one another.

Below is a list of the readings for this module. We will prompt you at appropriate points in the text when you should read the relevant paper. The list is provided here for your convenience and to provide a pre-view of the module.

Module 4 Readings:

Unit 1: “The Distance Educator: Author–Editor Versus Course–Team Member and Evolving Roles–Skills”

Reading 1. Black, M. (2000). Are We All Managers Now? *Open Learning*, 15 (1), 81–88

Purpose: Read this case study and think about whether you agree with Black that the team approach adopted by the Centre means “academic, clerical and administrative staff are all in some way involved in the management of the distance learning courses run by the Centre” (p. 81).

Reading 2. Perez, M. M. (2001). The ITESM Virtual University: Towards a Transformation of Higher Education. In F.T. Tschang and T.D. Senta. (Eds.), *Issues in Higher Education: Access to Knowledge – New Information Technologies and the Emergence of the Virtual University* (pp. 337–369). Amsterdam: The United Nations University Institute of Advanced Studies.

Purpose: Read this chapter and think about how ITESM had applied ICTs in Mexico (comparing this context with your own) for over a decade. Pay particular attention to the changing roles of the faculty and students, pp. 359–367.

Unit 2: “Teaching at a Distance – Principles for Effective Practice & Faculty Development”

Reading 1. Willis, B. (1992). Strategies for Teaching at a Distance. ERIC Digest ED351008. Available Online: http://www.ed.gov/databases/ERIC_Digests/ed351008.html

Purpose: Read this article and think whether you agree that “effective teaching at a distance is more the result of preparation than innovation” (p. 1).

Reading 2. Olcott, D. (1999). Instructional Technologies, Part Two – Strategies for Instructor Success: Selecting and Using Distance Education Technologies. *In Teaching at a Distance: A Handbook for Instructors* (pp. 31–39). U.S.A.: League for Innovations in the Community College. Archipelago Productions.

Purpose: Read this chapter to learn about the advantages and limitations of audio, video, and computer-based (ICT) systems, focusing on the teaching tips provided.

Reading 3. Dillon, C. L., & Walsh, S. M. (2002). Faculty: The Neglected Resource in Distance Education. In L. Foster, B. L. Bower, & L.W. Watson (Eds.), *The ASHE Reader – Distance Education: Teaching and Learning in Higher Education* (pp. 275–284). USA: Pearson Custom Publishing.

Purpose: Read this review of research to discover key issues related to faculty participation (or alternatively non-participation) in distance education.

UNIT 1

“Roles and Functions of Distance Educators and How These are Influenced by Differences in Delivery Systems and ICTs”

Assignment 1

Think about your own experience of a face-to-face teaching situation, in particular, the academic tasks and administrative tasks of the teacher. Think about the roles and functions of a teacher. Then in writing make a list of the things that a face-to-face teacher normally does and in the same way, list what you think a teacher teaching at a distance might do.

Throughout this course we have stressed the special requirements of distance education regarding course design and development, providing for interaction and the planning, management, and administration of distance education operations.

Understandably, the roles and functions of the distance educator will also differ when compared to the roles and functions of a lecturer or teacher at a campus-based university. The roles and functions are directly influenced by the type of distance education delivery system, but also by the kinds of ICTs that are used within these systems. In this unit we will examine how delivery systems and ICTs impact on the roles and functions of distance educators.

With reference to the distance education system we discussed in Module 3, the changes in the roles and functions of distance educators when compared to face-to-face teaching are most evident in the following subcomponents of a distance education system;

- 1) the management and administration subsystem and
- 2) the instructional design subsystem.

Examples of how delivery systems influence the roles and functions of the distance educator

Division of labour is a characteristic feature of the systems and processes associated with the large single-mode distance education organizations. There are individuals and whole departments within these large institutions that specialize in specific areas of the distance education process. In these single-mode institutions, there are typically dedicated departments for:

- 1) content (usually an academic department);
- 2) instructional design;
- 3) graphic design;
- 4) editing;
- 5) audio-video media design and production;
- 6) reproduction departments.

Another feature of the large single-mode providers, are the large administrative departments. For example, UNISA is typical in how it handles students' assignments in its dedicated Assignments Department which has responsibility for receiving all incoming assignments and keeping records of the assessment process including:

- registering the receipt of every assignment on a central database;
- organizing and tracking the distribution of assignments for marking;
- recording students' achievement on the system; and
- returning the graded assignments to another department (UNISA calls it the Department of Dispatch) to send back to the students.

The entire process is electronically monitored to ensure that each assignment is assessed in a reasonable period of time and all queries relating to marks or assignments are dealt with by the Assignments Department (and not the academic department).

Note that while the assessment process in face-to-face situations is an academic function and responsibility, in large-scale distance education the labor functions are divided according to the component parts of the assessment process. Consequently, “administrative” departments in large distance education systems carry out many functions that are considered to be “academic” functions in face-to-face institutions. Also, the large-scale providers usually have a far greater proportion of “administrative” staff when compared to face-to-face organizations.

This division of labor is not only limited to the “administrative” type of procedural functions, but can also be found in a range of activities that would normally be considered purely academic. For example, an academic who authors a course is not necessarily the same academic who teaches the course or even marks the assignments. These functions and responsibilities are divided among many different people. In face-to-face situations, instructional design is usually the responsibility of the faculty member who presents the course, whereas in the large-single mode distance education institutions this is done by dedicated departments staffed with specially trained instructional designers.

Assignment 2

The purpose of this assignment is to examine the management and administration roles of different team members a dual-mode system (The University of Leicester’s Centre for Labour Market Studies in the U.K) by comparison with those in single-mode distance education and face-to-face teaching.

To do this, first read the following article – Black, M. (2000). Are We All Managers Now? Open Learning, 15 (1), 81-88 – then answer the following questions:

- *Explain in about 75 words why there is a “blurring” between the boundaries between clerical, administrative and academic functions in this dual-mode distance education system when compared to face-to-face delivery models.*
- *In about 50 words, list the functions that administrative staff in this dual-mode system carry out which would traditionally be considered “academic” in face-to-face systems.*
- *In about 50 words, list the functions that academic staff in this dual-mode system carry out which would traditionally be considered “administrative” in face-to-face systems.*
- *In about 100 words, identify the differences in the roles and functions of the distance educator in this dual mode system compared with the roles and functions of the distance educator in a large single-mode distance education provider.*

Clearly, different organizational structures and systems are required for single-mode and dual-mode systems. The different roles and functions will to a large extent be influenced by differences in the design, development, and delivery processes of the two types of distance education system.

A case study of how specific ICTs and corresponding DE system influences the roles and functions of the distance educator

Continuing our investigation into the ways distance education systems and ICTs can influence the roles and functions of a distance educator, we will examine another dual-mode example. This is an interesting example, because it incorporates the impact that sophisticated technologies may have on the teaching-learning responsibilities of members in the system. Furthermore, this case study demonstrates that pedagogy **must** drive the development of a distance education system – **not** the technology.

We will investigate the experience of the Monterrey Institute of Technology and Higher Education in Mexico. The Monterrey system has 27 campuses spread over a wide geographical area and uses technology to link these campuses for both administrative and teaching functions. It has evolved from a synchronous distributed classroom model of distance education to a virtual university model relying more and more on asynchronous modes of distance teaching. In previous years, using satellite technologies,

lectures were distributed to the remote sites. Today, the distributed lectures comprise only 10% of the total course time. These changes have had a dramatic impact on the roles and functions of lecturers and students alike.

Assignment 3

The Monterrey case study is based on the reading below. (Before answering the questions below it is important that you understand the way the Institute believes society and the economy are changing as explained in the introductory section of the article.)

Read the following article – Perez, M. M. (2001). The ITESM Virtual University: Towards a Transformation of Higher Education. In F. T. Tschang & T. D. Senta. (Eds.), Issues in Higher Education: Access to Knowledge – New Information Technologies and the Emergence of the Virtual University (pp. 337-369). Amsterdam: The United Nations University Institute of Advanced Studies – and answer the questions that follow:

1) *In about 100 words, provide a brief description of the two systems that preceded the Virtual University initiative, by completing the following table:*

Initiative	Description of the delivery system	Identified weaknesses of the system
1989 The Education by Satellite Project (PES)		
1992 Interactive Education System by Satellite		

2) *In about 150 words, provide a detailed description of the Virtual University delivery system currently being used by the Monterrey Institute of Technology and Higher Education. You should structure your answer according to the functions of distance teaching discussed in Module 2 of this course, using the following table:*

Distance Teaching Function	List the specific ICT used	Brief description of how the specific ICT is used to achieve the teaching function concerned
Presentation of learning content		
Providing for interaction <ul style="list-style-type: none"> • Student–content interaction • Student–instructor interaction • Student–student interaction 		
Assessment		
Providing for student support		

3) *In about 200 words explain how the changes in the Virtual University system at the Monterrey Institute of Technology and Higher Education has resulted in change in the roles and functions of the teachers and students respectively.*

The specific delivery system used by distance education institutions, combined with the types of ICTs and how these are integrated within the system will have a direct impact on the roles and functions of the distance educator. Obviously this will also influence the skills and competency requirements of the individuals working in these distance education systems. Though a direct influence exists, we would argue that everything does not change. In effect, no matter the technology, we would like to leave you with idea that good teaching is good teaching and many of the principles of effective teaching remain the same.

Among the significant influences on the roles and functions of the distance educator is the type of team used for design and development of distance learning resources. Therefore, we have chosen to end this unit with an examination of the influence of the types of team used for the design and development of distance learning resources on the roles and functions of the distance educator.

Alternatives for constituting design and development teams in distance education

There are a number of different types of teams that can be used for the design and development process in distance education and we will limit our discussion to the two main types discussed by Moore and Kearsley (1996, p. 107), namely the **author-editor** model and the **course-team** model pioneered by the British Open University.

An **author-editor** model was traditionally favored by dual mode institutions for creating independent study correspondence-based courses but also it is frequently applied by such institutions today in developing courses for delivery on the Internet.

In this model a subject matter expert drafts the original course materials and an editor/editorial staff produces the final course. Here a multi-skilled course author creates nearly all the content and makes all the decisions about instruction, though technical media specialists may assist — especially when course production involves the application of web-design skills.

The quality of the materials will be dependent of the range of skills that the author and editors bring to the development. Assuming that they have the range of skills required for distance education design and have adequate time to spend on the development this approach can be very effective in developing learning materials more quickly without the demands of obtaining consensus of large course teams. However, the range of specialized skills required in distance education is wide and if they are to be found in one or two individuals there are considerable implications for the professional development of staff.

In the **course-team** model, each course is designed and produced by a team (which might be as large as 20 people) of many different specializations. The objectives, content and delivery alternatives are debated collaboratively, not only by content specialists but might include radio and television producers, instructional designers, multi-media experts, librarians, editors, and external consultants. A senior academic usually chairs the team and very often a dedicated project manager is assigned to schedule and manage the work of the team members.

Much creative work and detailed planning goes into every component of the course to ensure that everything fits together as a whole. Although full-team course developments are demanding, the model has proved to be extremely successful in large-scale operations and the quality of the learning experience is generally regarded as superior to courses that are designed and taught by individual teachers.

Author-Editor Versus Course-Team: Strengths and Weaknesses

The author-editor model is usually cheaper and quicker than course teams. Since neither the academic nor editor is likely to be also an instructional design expert, the tendency is to use a limited range of course tools and strategies. The approach is limited by the creativity of the few members of the author-editor team when compared to the wider and diverse range of inputs that usually arise from a multi-skilled professional team in the full course-team situation.

With more abilities and tools at their fingertips, the team can collectively generate a wider range of learning strategies and draw on a wider range of media alternatives. There are also weaknesses associated with this approach. Among the main ones are:

- the team approach requires high levels of planning and project management,
- is more labor and time intensive,
- negotiating consensus in a large team requires good group facilitation skills and
- tends to be more expensive.

Now let's consider which of the above approaches are most suitable for your own situation.

Assignment 4

In about 100 words identify which model (author-editor or course-team) you would recommend for your own specific distance education situation. Justify your decision by describing why you chose the model you did and by listing the potential risks you face with your decision.

Perhaps you said that the author-editor approach makes sense, because the course you are thinking of has a very small enrollment or will have a short lifetime, or if you have very few resources to spend on the course. In contrast, you might have said the course-team is justified for courses because you expect large enrollments and long life expectations. The latter case will justify the greater expense and time of the course team and the former will not?

As we end this section, keep in mind that whether operating in small teams or large teams in distance education participants in the design process must be team players. Let's conclude this unit by considering a few generic roles, skills and competencies associated with distance education teaching.

Generic roles, skills and competencies required in distance education

In educational thinking (both distance and conventional face-to-face education) recent years have seen a shift in emphasis from lecturer-centered approaches of teaching to approaches that support and promote learner-centered pedagogy. In the latter approach, educators assume the role of learner facilitator as opposed to controller or custodian of the knowledge that will be imparted during the course. Particularly when implementing digital ICTs in distance education, it becomes more difficult to entrench a role where the educator dictates the learning events by "professing" knowledge in small bytes controlled by the teacher. In distance education learners are often experienced adults, and evolving technologies offer increasing opportunities for self-discovery of relevant knowledge, and learners may often question and challenge the "authenticity" of knowledge declared from the lecturer's "podium".

You will have noted that in this regard, the latest attitude to learning and to learning at a distance reflects the approach advocated by Wedemeyer and other pioneers in their concept of distance education as "independent study", where the learner had greater autonomy than in conventional education.

In this regard we would like to re-emphasize the following roles identified by Perez (2001, pp. 359-364) for educators working within technology enhanced delivery systems. Perez stresses that in this environment, the lecturer is:

Footnote: [Please note the roles below (above) are based on the ideas presented by Marisa Martin Perez on pages 359-364. For her work refer to your Book of Readings Perez, M. M. (2001). The ITESM Virtual University: Towards a Transformation of Higher Education. In F. T. Tschang & T. D. Senta. (Eds.), Issues in Higher Education: Access to Knowledge – New Information Technologies and the Emergence of the Virtual University (pp. 337-369). Amsterdam: The United Nations University Institute of Advanced Studies.]

- 1) A learning role model, helping to create a supportive working-learning environment of mutual respect so that students feel comfortable.
- 2) A learning facilitator, helping all learners to effectively communicate and listen carefully so as to guide participants in achieving their learning objectives.
- 3) A learning coach, helping students to engage further and better within their own learning process by helping them make decisions, select relevant information, meet objectives, reflect on their own learning processes, and recommend improvements.
- 4) A learning manager, keeping abreast with students' progress, activities and quality of work and assisting in a positive way where problems are identified.
- 5) A content-information expert, continually evaluating and updating knowledge provided/shared with students.

- 6) A learning counselor, establishing and clarifying learning criteria so students can meet learning objectives, helping students overcome obstacles.
- 7) A learning motivator – motivating students and challenging them to put their ideas into practice through reflective debates and interactive discussions; encouraging students in their explorations and projects.
- 8) A learning innovator, developing courses, resources, and assessments to accommodate a wide variety of alternatives with respect to learning styles and modalities, socio-economic factors, and different cultures of students. This means applying different teaching methods and technologies to enrich the learning experience.

Having repeated the key roles identified by Perez (2001), we would like to present you another viewpoint (so that you have a couple of viewpoints) with respect to the generic roles and skills that are important for distance educators to possess.

[We refer you to Williams, P. E. (2000). *Defining Distance Education Roles and Competencies for Higher Education Institutions: A computer-Mediated Delphi Study*. (Doctoral Dissertation, Texas A & M University, 2000). **Dissertation Abstracts International-A**, 61/04. AAT 9969029 ISBN 0-599-73834-0.]

The roles and competencies, which evolved from a doctoral study preformed by Williams (2000) at the Texas A & M University in the United States, were identified by fifteen expert distance educators who completed four rounds of questionnaires using a Web-based Delphi research study technique.

Though the experts identified the roles and skills with the higher education teacher in mind, and in light of modern ICTs, we believe that most of the roles and competencies apply across countries, across levels of education, and across the different evolutions of distance education.

The roles these experts identified are the following:

- Administrative Manager
- Instructor/Facilitator
- Instructional Designer
- Technology Expert
- Site Facilitator/Proctor
- Support Staff
- Librarian
- Technician
- Evaluation Specialist
- Graphic Designer
- Trainer
- Media Publisher/Editor
- Leader/Change Agent

Among the competencies required are the following:

- Ability to communicate and build effect interpersonal relationships (Some of the specific skills required include collaboration/teamwork skills, interpersonal communication skills, writing skills, and questioning skills.)
- Ability to administer and manage courses (Some of the specific skills required include planning and organizational skills, knowledge-skills related to student support services, and knowledge-skills with respect to intellectual property, fair usage, and copyright regulations.)
- Skill in using technology (Some of the specific skills required across all roles were basic knowledge of access to technology, basic skills in using technology, and basic knowledge of the distance learning field.)
- Skill in delivering instruction (Some of the specific skills required across all roles are skills in developing collaboration, skills in developing a learner-centered learning environment, and knowledge-skill in applying adult learning theory.)

Of significance, the distance educator experts who participated in Williams (2000) study reported that interpersonal and communication skills remain necessary across all roles and dominate the top ten general

competencies in both studies. In addition, among the most important skills are those of using technology including the Internet and Web and being able to work in and work toward developing teams.

The competencies that emerged in the study above are necessary to varying degrees across all the roles. Of course, the importance of the roles and competencies will vary depending on the institutional environment and distance education model applied, and that specific technology competencies will vary depending on the mode of delivery of instruction to distance students.

In a single mode team-design model these skills will be distributed among more individuals than in systems such as Monterrey or Texas that are largely dual mode, author-editor systems.

Unit Closing

To summarize in the first unit of Module 4, you have:

- Thought about the teacher’s academic and administrative tasks and listed the things that a face-to-face teacher normally does and what you think a teacher teaching at a distance might do.
- Thought about why there is a “blurring” between the boundaries of clerical, administrative and academic functions in a dual-mode distance education system when compared to face-to-face delivery models. And you’ve identified the differences in the roles and functions of the distance educator in the dual mode system compared with the roles and functions of the distance educator in a large single-mode distance education provider.
- Thought about the delivery system currently being used by the Monterrey Institute of Technology and Higher Education and explained how the evolving Virtual University model at the Monterrey Institute of Technology and Higher Education has changed the roles and functions of the teachers and students respectively.
- Thought about and identified which model (author-editor or course-team) you would recommend for your own specific distance education situation. Justified your decision by describing why you chose the model you did and by listing the potential risks you face with your decision.

Now begin to read Unit 2 of Module 4, where we will focus on specific teaching skills depending on the delivery technology adopted by the distance education system.

UNIT 2

“Teaching at a Distance – Implications for Skills Development in Your Local Distance Education Context”

The purpose of this Unit is to encourage you to think about what skills training may be necessary for local staff before beginning with teaching or tutoring distance education courses with specific emphasis on different ICTs. Apart from the specific skills requirements of using different ICTs in a variety of distance education applications, distance educators must also develop the skills required for selecting the most appropriate technology. These are the issues that will be covered in this Unit.

We established in the previous Unit that the extent of the differences in the skills requirements between face-to-face teaching and distance education would depend, among other things, on the delivery systems employed.

For example, the pedagogy used in the distributed classroom model tends not to differ significantly from the pedagogical foundations of good face-to-face teaching – other than overcoming the physical constraints of the specific delivery technology. This would include training for tutors in becoming familiar with the operation of the specific technology, for instance, how to switch between different sites when dealing with student questions, how to incorporate graphics, images and videos into the lessons and relay these seamlessly to the remote sites, understanding what the students will see and hear at the remote sites and planning presentations accordingly. The prime objective with this skills training is that the technology must become transparent. This means that students become unaware of the technology and focus on the learning experience, however, when tutors do not know how to operate the specific technology properly, than the technology loses its transparency and becomes the focus of the lesson instead of simply being the medium of delivery.

Conventional face-to-face pedagogy is not sufficiently comprehensive to deal with the demands of asynchronous delivery. For example: One of the most significant advantages of independent study is the fact that it allows learners the opportunity to progress through the course at their own pace depending on their personal circumstances and individual abilities. How do you promote student-student interaction when different learners tend to be working at a different **pace** (that is, not all the learners will be at the same point of progression in a given course at the same time)? What are the implications for the teaching organization and distance educators when different students will be at different points of progress in the course (for instance, should predetermined submission dates for assignments be fixed or should you allow greater freedom for learners to proceed at their own pace)? How do you promote feelings of belonging and retain high levels of motivation when students are dispersed over a wide geographical area and very often feel isolated and removed from the learning experience?

These are but a few examples of the practical implications of teaching in a distance education system, and the range of skills required by distance education practitioners must be taken into account when planning to implement distance education systems.

Assignment 1

Let us assume that the distance education system you plan to implement in your situation will predominantly be based on a synchronous model of delivery. Read the following article – Willis, B. (1992). Strategies for Teaching at a Distance. ERIC Digest ED351008. Available Online: http://www.ed.gov/databases/ERIC_Digests/ed351008.html – then answer the question below:

- *Taking your particular distance education situation into account and based on your reading of Willis’s “Strategies for Teaching at a Distance”, in about 250 words list the ten most important skills that your distance teachers would need to acquire in order for a synchronous model of delivery to be effective in your situation.*

Another challenging aspect of distance education, especially for newcomers to the field, concerns the question of workload in distance education. That is how much material can a distance learner realistically manage? Course developers and distance educators need to consider this dimension very carefully, because

in the absence of regular face-to-face sessions, it is very easy to overload distance education courses. When calculating workload, you need to consider all the activities that the learner must carry out within the course, for example: reading study guides, required readings and online text; watching videos; listening to audio cassettes; attending face-to-face sessions or distributed lessons; time for preparing and completing assignments; time required for completing in-text activities or engaging in compulsory group work.

The first step is to establish the total learning hours for a given course. As a basic indicator, let us imagine a dual mode university requires between 1000 and 1200 hours of total study for one year of full-time study at the undergraduate level. Therefore, if a specific degree requires the successful completion of 5 year-subjects, the amount of study hours would be approximately 200 hours for each year-course (1000 divided by 5). The total study hours required per course would not be reduced for distance education courses when compared to the full-time residential equivalent because this would result in differentiated standards. However, in distance education settings, the number of courses that a part-time student can realistically manage, taking into account work and other commitments, is usually less than the number of subjects a full-time student would take. At UNISA, for example, students are advised that they should be able to spend between 7 and 10 hours per week on each undergraduate subject that they enroll for. Personal circumstances will dictate the number of subjects a specific student can realistically manage.

Having established the total number of learning hours for a course, you must then be able to calculate how long a student will take on an individual unit of study. The best way to establish this is to pilot your materials with a representative group of students, however, the following rules of thumb (adapted from Chambers, 1994, p. 108) are useful guidelines:

- a very easy to read text, for example introductory text in a study guide, can be read at a rate of 100 words per minute;
- straightforward academic learning text can be read at a rate of 50-70 words per minute to accommodate studying activities like underlining or limited reflection;
- conceptually dense and difficult academic text would be read at a rate of 20-40 words per minute;
- simple listening and viewing activities using audio or videocassettes would require the playing time only;
- the attendance of face-to-face sessions or distributed classes would be measured according to the duration of the session;
- more sophisticated listening or viewing activities requiring interactive viewing, note taking, speaking about, thinking about or replaying of the audio or video tape would require from two-times to four-times the playing time of the media concerned;
- remember to include the time for preparing and completing assignments which would vary according to the nature of the assignment – remember to allow time for reading and analyzing instructions, additional activities that must be carried out in order to complete the assignment, preparing drafts and time for improving, reviewing and editing the assignment;
- remember to include the time for attending practical laboratories or conducting experiments;
- remember to allow time for revision and examination preparation if appropriate.

(Note that reading speeds need to be reduced for learners studying through the medium of a second or third language).

Apart from the skills required for determining workload, distance educators must also be able to take decisions regarding the most appropriate technologies for different situations. This will partly be influenced by the features and characteristics of individual technologies, but is also influenced by factors such as cost, access, and available skills in using different technologies and the levels of technological support available.

Assignment 2

Let us consider three different technology enhanced distance education applications: video-based systems, audio-based systems and computer-based systems. (We have purposefully excluded print-based systems, not because they are inappropriate or ineffective, but rather to focus attention on the complexities of taking decisions regarding distance education technologies by removing the solution normally proposed in developing society contexts. You may, however, wish to integrate print-based technologies in your final answer below.)

Taking your particular distance education context into account, imagine you are asked by your manager to recommend one of the three delivery systems. Read the following article – Olcott, D. (1999). *Instructional Technologies, Part Two - Strategies for Instructor Success: Selecting and Using Distance Education Technologies* (pp. 31-39). *Teaching at a Distance* – and then answer the following questions:

- In about 200 words, list the reasons why you have rejected the implementation of two “unsuccessful” technology applications taking your local distance education situation into account.
- In about 200 words, list the implications for skills training of the staff involved in your distance education context for the technology application you have recommended.

Selecting appropriate technologies for your specific distance education context is not a straightforward decision. In the literature you will find a variety of different decision –making models that can assist educational planners and individual course designers with making the “right” choice regarding the best technology for a given situation. Each model has its strengths and weaknesses and you will need to develop the skill of discernment in selecting the model most appropriate for your own situation.

In this Module we will not attempt to present you with a variety of decision-making modules. However, Tony Bates, an acknowledged expert on instructional technology for distance education, has developed a useful acronym for assisting with these difficult technology decisions. Bates has developed seven criteria that can be used when deciding on individual technologies and is summarized by the acronym “ACTIONS” (cited by Daniel 1997, p. 17). The criteria are organized according to the hierarchical importance of each criterion, starting with the most important dimension of the decision-making process. The elements of the acronym ACTIONS are listed below:

- *Access* is identified as the most important criterion. If students do not have access to the selected technology it will not be successful. Remember that certain technologies may cost students extra money. Furthermore, the fact that students may not have physical access to certain technologies, does not necessarily mean that distance education systems should not consider their application. It does, however, stress the importance for providers to find feasible and sustainable solutions to the access problem, when measured against potential pedagogical benefits. In the absence of feasible and sustainable solutions to the access problem, alternative technologies must be found.
- *Cost*: Different technologies will have different cost implications for both students and the relevant delivery organization. Therefore when taking decisions regarding specific technologies, organizations should consider opportunities for capitalizing on economies-of-scale. However, cost is a major determinant in selecting specific technologies in distance education.
- *Teaching and learning* considerations consider the extent that the teaching objectives can be achieved with the relevant technology choice. Remember that, with creative course design, students can achieve the same learning objectives using a variety of different technologies. For this reason teaching and learning considerations are less discriminating than access and cost dimensions.
- *Interactivity and user-friendliness* refers to the specific technology’s ability to promote various forms of interaction. Remember that interactivity is more a question of quality design, than a question of the inherent interaction capabilities of a specific technology. Remember that high levels of interaction can be achieved with older forms of technology, provided that this is incorporated into the instructional design. Yet at the same time, evolving digital ICTs do enhance the potential for interaction if they have been included as an integral component of the design of the course.
- *Organizational issues*: This criterion relates to the existing organizational capabilities (or limitations) of being able to effectively integrate and incorporate a specific technology within its delivery system. You will see that this is not listed as the most important criterion because in certain situations it may be more advisable to adapt or change the organizations delivery system than reject a specific technology.
- *Novelty* is a useful dimension that can be used to attract funding for “new” technologies, however, organizations must ensure that they will be able to remain cost effective when the “novelty” funding runs out.
- *Speed* concerns the dimension of taking some risk. If you wait until the perfect technological solution arrives, you will never develop the competencies and skills required in technology enhanced distance education applications. There is value in adopting a learn-by-doing approach provided that the criteria listed above are not ignored.

In this unit we have been focusing on the implications for skills development resulting from the implementation of various technologies in a variety of distance education applications. This reaffirms the importance of the skills and competencies of the staff members involved in the distance education initiative. In situations where existing organizations decide to embark on distance teaching projects, management and leadership of the organization concerned will also need to consider the incentives or reward mechanisms for keeping staff motivated and dedicated to the distance education initiative. Therefore, successful distance education projects are not only dependent on the prerequisite skill requirements of the participating staff members, but also depends on the extent that the organization concerned supports and promotes quality distance education practice.

There is a wealth of experience that has been accumulated from many institutions that have begun with distance education projects. Key to the success of these initiatives is the extent that the host organization supports and rewards the participating members of staff. It is critical that staff participate in distance education initiatives in a meaningful way.

Assignment 3

Read the following paper which reviews the research concerning what organizations should be doing to promote success with their distance education projects – Dillon, C. L., & Walsh, S. M. (2002). Faculty: The Neglected Resource in Distance Education. In L. Foster, B. L. Bower, & L.W. Watson (Eds.), The ASHE Reader - Distance Education: Teaching and Learning in Higher Education (pp. 275-284). USA: Pearson Custom Publishing.

While you are reading this article, list the factors, which you consider to be barriers to the success of effective staff participation as well as the factors you believe are critical for successful participation by staff in distance education initiatives. You may find it easy to tabulate your answers using the following table:

Barriers to effective staff participation in distance education	Critical success factors to ensure staff participation in distance education initiatives

Research and Staff Development in Open and Distance Education

“Staff development is a crucial aspect in the creation and implementation of new approaches to teaching and learning, especially in the context of rapid cultural, economic, social, and technological change ... effective staff development deals reflexively and creatively with the needs of staff in their work context ... research has a fundamental role in critically reflective educational practice” (Evans & Nation, 1998, p. 45).

Assignment 4

Read the article – Evans, T., & Nation, D. (1998). Research and Staff Development in Open and Distance Education. In Latchem, C., & Lockwood, F. (Eds.), Staff Development in Open and Flexible Learning (pp. 45-53). London: Routledge Studies in Distance Education – and write a short essay (about 100 words) describing a project you might do with respect to your own personal professional development that shows you have blended both research and critical reflection on your own practice. (For example, you might decide to do an action research project as described on p. 51.)

Unit Closing

To summarize, in the second unit of Module 4 you have:

- Identified the ten most important skills that your distance teachers would need to acquire in order for a synchronous model of delivery to be effective in your situation.
- Thought about and listed the reasons why you have rejected the implementation of the two “unsuccessful” technology applications taking your local distance education situation into account.
- Listed the implications for skills training of the staff involved in your distance education context for the technology application you have recommended.
- Listed the factors you consider to be barriers to the success of effective staff participation as well as the factors you believe are critical for successful participation by staff in distance education initiatives.
- Thought about and described a project you might do with respect to your own personal professional development that shows you have blended both research and critical reflection on your own practice.

MODULE 5

Distance Education: Learners and Learning in Distance Education with Special Attention to the Application of ICTs

Goal

For you and other learners to develop your understanding of distance learners (including the disabled) and learning at a distance and to develop an appreciation for the positive impact that good student support has on learners and learning.

Objectives

After studying Module Five, you will be able to:

- In about 50 words describe yourself as a distance learner. Think about your age, employment situation, educational background, motivation for studying, learning context, and problems that may hamper your progress on a distance education course. (If you haven't studied at a distance, try to think how you would be as a distance learner).
- Using information from your institution's student database, complete a questionnaire to get to know your own institution's distance learners and then compare the "typical" distance learner we have presented with a "typical" distance learner from your own institution.
- In a table provided for you, list the characteristics associated with attrition.
- Having read Morgan's and Tam's study which lists four categories of persistence barriers,
 - ♦ List these barriers providing at least two practical examples of each barrier that you would expect to find in your local distance education situation.
 - ♦ Identify the two most significant findings and implications of the study.
- Having read "Bridging the Digital Divide" in Sallis & Jones (2002),
 - ♦ Explain what this "Divide" may mean for the future of distance education and attrition in your local context.
 - ♦ In about 150 words identify what you consider to be the three most important problems and/or issues with respect to distance learning and the "Digital Learning Divide." In each case you must also suggest a relevant and sustainable solution for your own distance education situation.
- Having read "Serving Student's with Disabilities in Distance Education Programs" by Paist, E. H. (2002), respond to the following questions:
 - ♦ How can distance education institutions identify and support students with disabilities, particularly when there are often legal and ethical issues which prohibit discrimination against learners with disabilities, thus questioning the practice of requiring learners to identify disabilities at registration?
 - ♦ List examples of the practical measures which distance education institutions can take to accommodate learners with different disabilities.
- Having read "Information Technology and Disabled Students: Overcoming Barriers to Learning" by Vincent (1995),
 - ♦ List the examples of how digital ICTs can assist learners with disabilities in distance education.
 - ♦ In about 50 words, explain why distance education resources that are sourced and stored digitally can accommodate disabled students and other students that do not require special support because of a particular disability.
- In about 100 words with respect to your own local context, explain at a general level what you would do to provide ICT-based distance instruction and course materials for your own disabled students.

- Having read a case study on support services at the Zimbabwe Open University “A Critical Assessment of Learner Support Services Provided by the Zimbabwe Open University” by Benza et al (2002),
 - ♦ List and explain the four most significant shortcomings of the student support system as identified by the research reported by the authors above.
 - ♦ Suggest ways in which digital ICTs can be used to overcome these problems, taking the situational context of cost-effectiveness, sustainability and access to ICTs into account.
- Having read the following critique “Equal Opportunities in Open and Distance Learning,” where the authors consider areas where distance education has not succeeded adequately with promoting the objectives of equal opportunity in education by Bailey et al (1996),
 - ♦ List and explain the most significant areas where distance education has not succeeded in promoting the objectives of equal opportunity;
 - ♦ To what extent would you say that these problems of equal opportunity exist in your own national education situation?
 - ♦ What recommendations would you make, with particular emphasis on digital ICTs, to overcome these problems in your own distance education situation?
- In about 100 words identify what you consider to be three key problems and/or issues (this can include disabled student problems/issues) with distance education and/or learning at a distance in your own context. Then explain a potential solution for each one that pertains in some way to supporting the learner.

Introduction to Module Five

In the fifth module of our course we are going to discuss learners and learning in distance education, paying special attention to applying ICTs. The module is divided into two units. The first unit describes characteristics of distance learners, details learners’ roles and responsibilities especially when ICTs are applied, provides guidelines for effective distance learning, and identifies key problems and/or issues with respect to learners-learning at a distance. Unit Two first touches upon distance learning and the disabled and then concludes by discussing the significance and key components of effective learning support systems. This includes a section on how support can help bridge the “learning divide.”

To provide diverse views from different people about distance education, we have provided print articles related to this module of study. They are important, since they highlight basic issues relating to the module and will help you respond to the questions provided. Please read the articles. They are important, since they highlight basic issues relating to the module and will help you respond to the questions provided.

The module contains assignments designed to help you to think about and interact with the content, the instructor, and other learners. The assignments can also be used for assessment (and grading by your instructor).

Below is a list of the readings. We have identified the unit of study within each module of the course that the reading best supports. We will prompt you at appropriate points in the text when you should read the relevant paper. The list is provided here for your convenience and, importantly, to provide you a preview of the module of work.

Module 5 Readings:

Unit 1: “The Distant Learner: Characteristics of, Roles & Responsibilities, Findings of Learning Research, Attrition and/or Persistence, and the ‘Learning Divide’”

Reading 1. Morgan, C. K., & Tam, M. (1999). *Unravelling the Complexities of Distance Education Student Attrition*, 20 (1), pp. 107.

Purpose: This article presents an investigation into the complexities of student attrition in a distance education course. Deep-seated factors involved in the attrition processes are disclosed, since the qualitative research process that was applied mapped students' responses during the course of the interviews. Read to discover the interesting patterns of change the study reveals.

Reading 2. Sallis, E., & Jones, G. (2002). *Knowledge Management in Education: Enhancing Learning and Education*. London: Kogan Page.

Purpose: Read Chapter 6 "Bridging the Digital Divide" (pp. 99–111) and think about what this "divide" might mean with respect to enrollment, barriers, attrition, and persistence in distance education. Think why we might refer to the "divide" as not only a digital one but a "learning" one. Think what impact this "divide" has on the future of learners with respect to the world of work.

Unit 2: "The Distant Learner: A Focus on the Disabled Learner and Learning Support Systems for All Distant Learners"

Reading 1. Paist, E. H. (2002). Serving Students with Disabilities in Distance Education Programs. In L. Foster, B. L. Bower, & L. W. Watson (Eds.), *The ASHE Reader* (pp. 367–372). U.S.A. Pearson Custom Publishing.

Purpose: Read this chapter to find out key ways in which distance instruction and course materials (especially when ICTs are applied) can be made available to disabled students–learners and to think about how policy impacts the disabled with respect to distance learning. As you read, think how the USA compares with your own local context.

Reading 2. Vincent, T. (1995). Information Technology and Disabled Students: Overcoming Barriers to Learning. In F. Lockwood (Ed.), *Open and Distance Learning Today* (pp. 87–97). London: Routledge.

Purpose: Read this chapter to find out key ways in which distance instruction and course materials (especially when ICTs are applied) can be made available to disabled students–learners and to think about how policy impacts the disabled with respect to distance learning. As you read, think how the United Kingdom compares with your own local context.

Reading 3. Benza, T.E.S., Chitsika, R., Mvere, F.S., Nyakupinda, D., & Mugadzaweta, J.G. (2002). *A Critical Assessment of Learner Support Services Provided by the Zimbabwe Open University*. Available Online: <http://www.col.org.forum/PCFpapers/benza.pdf>.

Purpose: Read this paper and think about what has worked with respect to learner support but also what has not worked. As you read, think about how the University might improve its learner support system and how you might improve the one in your own local context..

Reading 4. Bailey, D., Kirkup, G., & Taylor, L. (1996). Equal Opportunities in Open and Distance Learning" (pp. 129–145). In R. Mills & A. Tait (Eds.), *Supporting the Learner in Open and Distance Learning*. Great Britain: Pearson Professional Limited.

Purpose: Read this chapter and think about how a learning support system can provide equal opportunities in distance education. Compare the OUUK's systems with your own context, as you read.

UNIT 1

“Characteristics, Roles, and Responsibilities of the Distance Learner and Tackling the Attrition Challenge”

The characteristics of distance learners and their primary learning roles and responsibilities set the stage for Unit 1 of this Module. Before you read further, let’s consider you as a distance learner.

Assignment 1

In about 50 words describe yourself as a distance learner. Think about your age, employment situation, educational background, motivation for studying, learning context, and problems that may hamper your progress on a distance education course. (If you haven’t studied at a distance try to think how you would be as a distance learner).

The Characteristics of Distance Learners

Quite a bit of research has been done on the characteristics of distance learners. Let us begin to look at some of these findings.

Moore and Kearsley (1996) Thompson (1998) describe the distance learner as someone:

- between the ages of 25 – 50;
- slightly more likely to be female;
- probably married;
- probably employed fulltime;
- studying for the purpose of a better job

The gender may vary from country to country. In many parts of the developing world it is unusual to find more female learners than male learners and there are likely to be fewer older learners. Universally, distance education has attracted working adults but in many countries we are experiencing an increasing number of school leavers who are choosing distance education as their preferred alternative for higher education.

Distance learners have certain personality characteristics. They are usually:

- good at planning, relatively self-disciplined, and self-directed.
- self-motivated and responsible because they have taken a decision to study notwithstanding the difficulties of studying at a distance;
- have a positive self-image.
- independent and willing to question what they are learning because of their broader experience of life.

We also know that:

- Distance learners might prefer the flexibility of distance learning because of the demands of their varied life roles and responsibilities.

However, in complex fields like learning, it is not adequate to typify individual learners as “average”. Learning is experienced at the individual level, and many problems concerning attrition in distance education are experienced at the individual and personal level, irrespective of the “average” statistics of the distance learner. Nonetheless, these statistics help us to understand that the majority of distance learners are different from the traditional cohorts associated with full-time campus universities. It would be fair to

conclude the distance education audience is more heterogeneous than the “typical” undergraduate cohort at a residential university.

Without disregarding the problems of describing learners as “typical” distance education students, you will need to think carefully about the learners in your specific distance education context. The next assignment will guide you in identifying important characteristics about your learners.

Assignment 2

Using information from your institution’s student database try to complete the following questionnaire as best you can. If you do not have access to this kind of information, use your own experience and knowledge of your local situation to complete the questionnaire. You can answer the questionnaire from the perspective of the whole organization or for a specific course. In cases where you do not have detailed information, such as number of learners, answer the questionnaire from the perspective of a new course or institution where you, for example, provide the anticipated number of learners.

Questionnaire:	
Part 1: Demographic Factors	
Number of learners	
Average Age of learners or anticipated range	
Gender composition	
Ethnic composition	
Number of students with disabilities, if any. What is the nature of the disabilities?	
Number of students with language barriers if any, for example, second language learners. What other language barriers do you anticipate?	
Geographic distribution of students	
Educational qualifications	
Add any other relevant factors	
Part 2: Situational Factors	
Home situation, for example: married with children, migrant laborer, refugee etc.	
Professional factors, for example, reasons for studying	
Personal factors, such as needs for flexible time and place of learning	
Add any other relevant factors	
Part 3: Dispositional – Learning Factors	
Beliefs about learning in general and distance learning in particular	
Preferred learning modalities (such as visual, auditory, tactile, kinesthetic)	
Anticipated levels regarding distance study skills, information literacy skills, and other technical skills	
Experiences with different types of ICTs	
Add any other relevant factors	

Part 4: Resource Factors	
Where, when, and how will they be learning?	
Who will be paying their fees?	
How much time will they have available to allocate to their studies?	
What levels of access will they have to different types of ICTs?	
What access will learners have to human support, mentors, colleagues, and other learners?	
Add any other relevant factors	

As part of assignment two, compare the typical distance learner at your institution with the information we provided regarding the typical distance learner. Use the chart below:

	The Typical Distance Learner As Described in the Preceding Section of This Course	Your Local Distance Education Learner
Factors		
Average Age		
Gender		
Marital Status		
Employment		
Why studying?		
Other factors?		

Of course, you could add many more factors to create a complete profile of your learners. This important point we are trying to make is this: you **must** develop as good a profile as possible of your potential learners.

There are many reasons for this but in general, to design courses to meet learner needs, you need to know your learners and their needs! Second you need to know learner needs so that you can effectively facilitate, guide, coach, assess, and re-mediate their learning. Finally, learners' needs are important for the overall institution so that an effective learning support system – that should include learning how to learn at a distance, academic and other counseling, technical training and support, library support, etc. – can be put in place.

Factors influencing persistence and attrition in distance learning

Adult education scholar Clark (1994) said "It is likely that when two media treatments of the same informational content to the same students yield similar learning results, the cause of the results can be found in a method which the two treatments share in common ... give up your enthusiasm for the belief that media attributes cause learning" (p. 28, as cited in Simonson, Smaldina, Albright, & Zvacek, 2000).

Clark raises a very important dimension about the quality of teaching: Namely that the quality of teaching is not determined by the **medium**, but rather by the instructional design that the medium implements. However, Clark's statement can easily be misinterpreted because when she talks about media, she is referring to the

“hard-technology” or **medium that** carries the instructional message. When she uses the word **media**, she **does not** mean pictures, text, and sound as we have defined the concept.

What she means is, for example, if you take a distance education text in print format and duplicate this in the identical format on the Internet (that is, without adding internal hypertext links, or external links to other sources, and assuming that the learners do not use the search capabilities of electronic text, and no alternative media such as video, or animations are incorporated, and the learners do not use text-to-voice software); and then if the two examples render similar learning results, you cannot argue that the medium influences teaching quality.

As you can see from the example above, the convergence of technology and ever increasing capabilities digital technologies makes it increasingly difficult to distinguish between the pedagogical advantages and disadvantages of different media or hard-technologies. This is why we will not compare individual technologies in terms of their potential for enhanced learning quality. The problem is that each technology can be used in different ways in terms of the media that are employed within specific instructional settings. It is far better, particularly in an age of convergence, to deal with the question of technology and corresponding learning quality from perspective of well-founded principles of instructional design, and not the specific characteristics of individual technologies.

Before we proceed with a more detailed study of this topic, consider the findings of the research project summarized below.

Research Study: Rangencroft, M., Gilroy, P., & Tricker, T. (1999). *What is Important to Distance Education Students? Journal of Open and Distance Learning*, 14 (1), 17–24.

Three universities, two in America and one in Singapore, investigated what distance education students perceive as important in their courses by applying a survey to gather information. Open-ended questions contained four items – course satisfaction, decision to join, material, and assessment – were used. The respondents were required to provide their views on what they considered to be most important in a distance education course.

Findings indicated these were the most important things to the students:

- Decision to join: quality of course content, professional and personal development opportunities;
- Course satisfaction: opportunity of flexible study;
- Material: quality of content, logical structure/consistency, readability, up-to-date content, and punctual delivery of material; and
- Assessment: quality of feedback, relevance of assignments, clarity of assignments criteria, timing of feedback, and flexibility of submission dates.

The study reports the advantages mentioned include accessibility of education at remote locations and flexibility with respect to learning. The major problem identified is the delay of feedback.

Attrition or drop-out in distance education is a common problem. A complex mix of factors and personal situations will influence whether a distance learner persists or not with his/her course. On the one hand there are positive factors that encourage learners to enroll and complete their courses, yet on the other hand there are also factors, which are barriers or negatives regarding persistence in distance education. The “negatives” may even prevent a student from taking a decision to enroll, and will therefore not be tracked as an “attrition” statistic.

The most common reasons for enrolling mentioned in the research are to attain a degree and/or improve a career through study and to be able to accomplish this by minimizing the impact on work and family life when compared to face-to-face alternatives. In contrast, reportedly common barriers to enrollment include lack of money, lack of access to the technology the distance education system requires (such as computers and Internet-Web access), not enough time to study, belief that one has forgotten how to study, a perception that the learning process will be too difficult, and thinking of oneself as too old to learn.

Assignment 3

The following article provides a look into the questions of attrition in distance education as well as a valuable report on a qualitative study into this problem. Read the article – Morgan, C. K., & Tam, M. (1999). *Unraveling the Complexities of Distance Education Student Attrition*, 20(1), pp. 107. – then answer the questions that follow.

- Different approaches are used to study attrition. One way is to list the characteristics of students who persist or drop out and then use this as the basis for studying attrition. Alternatively, studying course characteristics associated with high dropout also can provide some indicators. Using these approaches as headings, list the characteristics associated with attrition as indicated in the following table

Student characteristics associated with attrition	Course characteristics associated with attrition

- Morgan and Tam based their study on four categories of persistence barriers. List these barriers providing at least two practical examples of each barrier that you would expect to find in your local distance education situation.
- In your opinion, what are the two most significant findings and implications of Morgan and Tam's qualitative study?

Though it is a problem, much research and experience show ways to lower attrition. These include:

- The very first contact a student makes with an institution is critical in establishing a positive interpersonal relationship and support system.
- Early contact between teacher-tutor and student is critical and where possible meeting the student in person before they begin distant study is particularly valuable.
- Providing teacher-tutoring where specific distance learning strategies are applied.
- Providing feedback of a nature that helps learners become self-sufficient.
- Concentrating on interaction among participants and active learning exercises. This can be done in a variety of ways, including the development of study groups (facilitated or not) and joint exercises by groups of students.
- Putting in place family and career counseling, since breakdowns in these situational factors cause much dropout.
- To the extent that institutional support structures are central to adult learner persistence, expansion and refinement of these structures become important administrative considerations, but if it is the situational factors that matter more, a support system has to attend to them primarily.
- Providing financial aid.

All of the above ways that help to lower attrition and help achieve learner persistence and/or completion can be considered support for the learner. What we know is this: absolutely critical to the success of any distance education program is a means of providing student support if and when it is needed.

Not only does student support make a difference but also well-founded instructional design that engages students in highly meaningful ways. Once again we point out that generally it is not technology itself that makes the positive difference.

The "Digital Learning Divide"

Closely linked to the problems of exclusion in distance education, particularly as the world moves rapidly forward in the domain of technology enhanced learning and distance education delivered predominantly using digital technologies is the question of the digital "learning divide". As we discussed earlier in this

course, the divide is not limited to those who have access to technology and those who don't. Perplexingly, it is the individuals and communities that experience social exclusion in global society that are most at risk from being excluded from the knowledge economy. "Those who are most susceptible to being marginalized in society are at the highest risk of being left behind in IT" (Sallis & Jones 2002, p. 110). Developing societies are clearly at risk concerning the widening of the digital learning divide.

Finding workable solutions for tackling the digital in developing societies will necessitate a holistic approach. Simply solving technology-access problems will not work alone.

Assignment 4

Read the following chapter – Sallis, E., & Jones, G. (2002). *Knowledge Management in Education: Enhancing Learning and Education*. London: Kogan Page. – and consider the questions, which follow:

- In about 100 words, explain what this "Divide" may mean for the future of distance education and attrition in your local context.
- In about 150 words identify what you consider to be the three most important problems and/or issues with respect to distance learning and the digital learning divide. In each case you must also suggest a relevant and sustainable solution for your own distance education situation.

Unit Closing

To summarize in this unit you have:

- Thought about yourself as a distance learner, considered your age, employment situation, educational background, motivation for studying, learning context, and problems that might hamper your progress on a distance education course.
- Thought about your own institution's distance learners and then compared the "typical" distance learner we presented with a "typical" distance learner from your own institution.
- Thought about and identified the characteristics associated with learner attrition.
- Having read Morgan's and Tam's study which lists four categories of persistence barriers, listed the barriers providing at least two practical examples of each barrier that you would expect to find in your local distance education situation.
- Having read Morgan's and Tam's qualitative research project, identified the two most significant findings and implications of the study.
- Having read "Bridging the Digital Divide" in Sallis & Jones (2002), explained what the "Divide" may mean for the future of distance education and attrition in your local context.
- Having read "Bridging the Digital Divide" in Sallis & Jones (2002), identified what you consider to be the three most important problems and/or issues with respect to distance learning and the "digital learning divide." In each case you also suggested a relevant and sustainable solution for your own distance education situation

UNIT 2

“Focusing on the Disabled Learner and Distance Education and Learning Support Systems for All Distance Education Learners”

Disabled learners and overall distance learning support systems, intended not only for the disabled but also for all distance learners, are the subject of this Unit of study.

The Disabled Learner

Asynchronous distance education systems, by virtue of the fact that learning can take place independently of time and space, are a form of delivery that are particularly attractive for disabled students.

A wide range of learner situations is covered by the term disability. Some of the more common disabilities include mobility impairments, visual or hearing or speech impairments, and/or learning disabilities.

What is the relationship between these disabilities and access to distance education?

Let’s first consider the question at a broad level. People with limited mobility can certainly use distance education to study at home rather than have to transport themselves to a class. Those with vision, hearing, or speech impairment often can get learning materials in alternative media forms and submit assignments and assessments in alternative media to their teachers-tutors. For example, in the United Kingdom (UK), the Open University of the UK has been the largest single provider of adult education for adults with disabilities in the UK. This has been because special resources have been made available to do so.

You might be interested in the numbers of students-learners who are disabled among those who are studying at a distance. Here are a few examples:

- Approximately 3% of the in-state students enrolled in the University of Wisconsin-Extension Independent Study program in the United States have either physical, visual, auditory, or learning disabilities (Paist, 1995, as cited in Foster, Bower, & Watson, 2002, *The ASHE Reader*, p. 63).
- Approximately 5,000 of the undergraduates, or about 5%, at the Open University of the United Kingdom have disabilities according to Vincent (1995). This rate is increasing at a rate of about 10% a year, a rate higher than the rate of the general increase in enrollments (Vincent, 1995, as cited in Foster, Bower, & Watson, 2002, *The ASHE Reader*, p. 64).
- Approximately 4% of UNISA’s learners have indicated a disability on registration requesting special assistance for disabilities, which the university accommodates.

We encourage you to find statistics for your local and national contexts as well as any literature that is available to you with respect to serving the needs of disabled students. Try to find information regarding your own local context, too, because we will ask you to complete an assignment pertinent to your own local situation.

Assignment 1

Read the following article – Paist, E. H. (2002). Serving Student’s with Disabilities in Distance Education Programs. In L. Foster, B. L. Bower, & L. W. Watson (Eds.), The ASHE Reader (pp. 367-372). U.S.A. Pearson Custom Publishing. – on how distance education can accommodate the special needs of disabled students and respond to the following questions.

- *How can distance education institutions identify and support students with disabilities?*
- *List examples of the practical measures which distance education institutions can take to accommodate learners with different disabilities.*

Assignment 2

Read the following chapter — Vincent, T. (1995). *Information Technology and Disabled Students: Overcoming Barriers to Learning*. In F. Lockwood (Ed.), *Open and Distance Learning Today* (pp. 87-97). London: Routledge. Then respond to the following questions.

- List the examples of how digital ICTs can assist learners with disabilities in distance education.
- In about 50 words, explain why distance education resources that are sourced and stored digitally can accommodate disabled students.

Note that the UK OU seems to have included their disabled students in planning. Vincent (1995) concludes his article this way:

“In a distance education environment, such as the home, the lack of immediate advice and support places even greater demands on providing appropriate, accessible, and effective technology. For this reason, hardware and software projects at the UK Open University have actively engaged students with disabilities within the research team. In turn, this has led to the identification of important factors that need to be taken into account when matching new information technology to individual needs” (p. 97).

Assignment 3

In about 100 words with respect to your own local context,

- Explain at a general level what you would do to provide ICT-based distance instruction and course materials for your own disabled students.

As you completed the above assignment, did you consider any institutional and/or national policies that are in place with respect to disabled students in your own context? Hopefully, in your context policies already exist that are supportive of the disabled. If not, then perhaps you will decide to work toward helping to create and then implement necessary policies.

Support Systems for Distance Learners and the challenges concerning equity in distance education

Research affirms that student support systems are essential for quality learning experiences, to include learning satisfaction and successful academic achievement, in distance education.

According to Moore and Kearsley (1996) three categories of student support are required:

- Guidance/counseling,
- Administrative assistance, and
- Assistance in interaction with students and teacher-tutors.

Considering the pervasive advances in digital ICTs, we must not overlook the importance of technical support for learners. Especially important is teaching learners to use the technology interface that delivers the course, to use the technology applied in the course itself, and to use the electronic library resources as applied by the particular distance education institution.

In Module 2, we identified student support as one of the four distance teaching functions. We described student support as a function that provides individualized support over-and-above the mass-produced learning resources associated with the large-scale single-mode distance education institutions. Let us examine a case study of student support with the purpose of identifying the main components of student support within the context of the challenges associated with distance education in developing society contexts.

For a specific case, the Zimbabwe Open University delivers services through ten Regional Centers and 55 District Centers. The most significant component of individualized support in this model refers to the

individualized feedback from tutors on assignments that students submit. There are also organized face-to-face sessions, but these are conducted mainly from the 10 Regional Centers, whereas the District Centers mainly provide logistical and administrative support.

Assignment 4

Read the following case study on support services at the Zimbabwe Open University – Benza, T.E.S., Chitsika, R., Mvere, F.S., Nyakupinda, D., & Mugadzaweta, J.G. (2002). A Critical Assessment of Learner Support Services Provided by the Zimbabwe Open University. – and answer the questions that follow:

- *List and explain the four most significant shortcomings of the student support system as identified by the research reported by the authors above.*
- *Suggest ways in which digital ICTs can be used to overcome these problems, taking the situational context of cost-effectiveness, sustainability and access to ICTs into account.*

Earlier in this course we pointed out that the philosophy of open learning has directed the evolution of distance education practice. Among other things, the philosophy of open learning is aimed at widening access to educational opportunities. And distance education is often cited as an example of how education systems can promote equity and equal opportunities in education. Even though open distance learning has had many successes with respect to promoting equal opportunity in education, distance education, in some areas, continues to struggle with the equal opportunity objectives.

Assignment 5

Read the following critique where the authors consider areas where distance education has not succeeded adequately with promoting the objectives of equal opportunity in education – Bailey, D., Kirkup, G., & Taylor, L. (1996). "Equal Opportunities in Open and Distance Learning" (pp. 129-145). In R. Mills & A. Tait (Eds.), Supporting the Learner in Open and Distance Learning. Great Britain: Pearson Professional Limited. – and respond to the following questions:

- *List and explain the most significant areas where distance education has not succeeded in promoting the objectives of equal opportunity;*
- *To what extent would you say that these problems of equal opportunity exist in your own national education situation?*
- *What recommendations would you make, with particular emphasis on digital ICTs, to overcome these problems in your own distance education situation.*

As Bailey et al (1996) say, "... we have ranged widely over the issue of the role of student support in equal opportunities policy and practice and the role of EO (equal opportunity) policy on student support. We have in the main raised issues rather than resolved them...." (p. 143).

We hope, as Bailey et al (1996) do that a healthy critique of 'openness' continues and that more international debate occurs. We would like to see distance learning continue to be a way of overcoming educational disadvantage and for promoting opportunities for groups that have traditionally been excluded.

We hope we may have inspired you to think about the issues with respect to your own context.

Assignment 6

In about 100 words identify what you consider to be three key problems and/or issues (this can include disabled student problems/issues) with distance education and/or learning at a distance in your own context. Then explain a potential solution for each one that pertains in some way to supporting the learner.

Unit Closing

To summarize in this Unit you have:

- Thought about how distance education institutions have identified and supported students with disabilities.
- Listed examples of the practical measures which distance education institutions can take to accommodate learners with different disabilities.
- Listed examples of how digital ICTs can assist learners with disabilities in distance education and explained why distance education resources that are sourced and stored digitally can accommodate disabled students and other students that do not require special support because of a particular disability.
- With respect to your own local context, thought about what you would do to provide ICT-based distance instruction and course materials for your own disabled students.
- Thought about and explain the four most significant shortcomings of the student support system at the Zimbabwe Open University as identified by a research study and suggested ways in which digital ICTs can be used to overcome these problems, taking the situational context of cost-effectiveness, sustainability, and access to ICTs into account.
- With respect to the Open University of the United Kingdom, thought about and explained the most significant areas where distance education has not succeeded in promoting the objectives of equal opportunity; explained to what extent these problems of equal opportunity exist in your own national education situation; and made recommendations, with particular emphasis on digital ICTs, to overcome these problems in your own distance education situation.
- In about 100 words identified what you consider to be three key problems and/or issues (this can include disabled student problems/issues) with distance education and/or learning at a distance in your own context and explained a potential solution for each one that pertains in some way to supporting the learner.

MODULE 6

Policy Issues in Practice in Distance Education

Goal

For you and other learners to develop an understanding of the context for policy making, the nature of policy making about distance education, especially with regard to using digital ICTs and to identify policy issues that governments and organizations and specific institutions must consider and attempt to resolve.

Objectives

After studying Module Six, you will be able to:

- Summarize the state of educational access in your country compared with the rest of the world.
- Having read Dhanarajan’s (2001) “Partnerships for Change,”
 - ♦ Identify the major factors underpinning the success of the Open University of Hong Kong in terms of the strategic policies that were adopted.
- Having read four tables which present a context from current socio-economic, educational, and technological premises state what you believe the policy implications might be.
- Using the policy framework guidelines presented in the second reading “A Distance Education Quality Standards Framework for South Africa” for Unit 1, create a table with the guidelines in one column and with information regarding your own institution in another column.
- From the general list of factors adapted from Tait (as presented in Unit 2), select the 5 most important considerations for your own context and rank these according to importance. Then explain why you ranked them as you did.
- Having read the 2001 interview with Abdul Khan (the previous Vice-Chancellor of IGNOU and currently the Assistant Director General for Communication and Information of UNESCO), answer the respective questions:
 - ♦ List the policy implications for distance education relating to the three aspects of access to technology that Khan has identified.
 - ♦ What ICTs has IGNOU implemented to widen for learners residing in remote locations?
 - ♦ List the policy implications of the major barriers and stumbling blocks with regards to rolling out ICT access in India.
- Having read “From Traditional Distance Learning to Virtual Distance Learning in Higher Education in Africa: Trends and Challenges” by Juma (2001), respond to the following questions:
 - ♦ List the policy implications you would recommend for your country based on your assessment of what Juma believes to be the shortcomings of distance education in Africa.
 - ♦ Describe the African Virtual University delivery system using the four distance teaching functions presented in Module 2.
 - ♦ List the strengths and weaknesses of the African Virtual University project and then describe the policy implications of your analysis with particular emphasis on the successful implementation of digital ICTs in your own country.
- Read “Distance Higher Education and a New Trend of Virtual Universities in Asia” by Yoshida (2001). Then answer the questions which follow:
 - ♦ In about 75 words summarize the distance education delivery systems used in Asia.

- ♦ To what extent do the complications with using digital technologies in Asia correspond with your local distance education situation?
- ♦ Yoshida discusses a number of virtual university initiatives in Asia. Based on your reading of these examples, identify which forms of technology enhanced distance education would be most appropriate for your situation.
- ♦ List the policy recommendations you would make to support the technology-enhanced distance education solutions you have identified.

Introduction to Module Six

In the final module of our course we are going to guide you through a discussion of policy-making in distance education, paying special attention to ICTs. This module is divided into two units. The first unit introduces implications for policymaking regarding worldwide trends in socio-economic, educational and technological spheres. The second unit introduces selected policy and strategic considerations, especially in light of planning and applying open and distance education for social and economic development. Using case studies from developing countries, we will be able to consider a wide range of relevant issues.

You will need to take the socio-economic, educational and technological situation of your own region and country into account. At the same time you should also be aware of the major trends around the world, and how this may impact on your local situation. You cannot separate the historical, political, socio-economic, educational, and technological trends of your own country and the world from the task of policy making in distance education.

Reading and thinking about these worldwide trends and reflecting critically about their implications for policy, we believe, will provide a foundation for your further study of policy-making for distance education with respect to ICTs in this module of study. For this reason, we begin in Unit 1 with an overview of these global trends, as they will form the foundations for specific policy issues that will be addressed in Unit 2.

The module contains assignments designed to help you to think about and interact with the content, the instructor, and other learners. The assignments can also be used for assessment (and grading by your instructor).

To enrich your learning experience and to incorporate a variety of diverse views and opinions about distance education, we have provided print articles related to this module of study. Please read the articles. They are important, since they highlight basic issues relating to the module and will help you respond to the questions provided.

Below is a list of the readings. We have identified the unit of study that the reading best supports. We will prompt you at appropriate points in the text when you should read the relevant paper. The list is provided here for your convenience and, importantly, to provide you a preview of the module.

Module 6

Unit 1: “Policy Making: The Implication of Social, Educational, and Technological Trends for Distance Education – ICT Policy Making”

Reading 1. Dhanarajan, D. G. (2001). Partnerships for Change. In C. Latchem & D. E. Hanna. (pp. 177–185). *Leadership for 21st Century Learning*. London: Kogan Page.

Purpose: Read this article to find out what leadership issues arose from Dhanarajan’s roles as inaugural Director of the Open Learning Institute of Hong Kong and his current role as President and CEO of the Commonwealth of Learning, a Vancouver-based intergovernmental organization created by Commonwealth Heads of Government to encourage the development and sharing of open and distance education knowledge,

resources and technologies to help developing nations to improve access to quality education and training. Consider the global trends and policy considerations related to distance education which Dhanarajan mentions in describing his leadership.

Reading 2. *A Distance Education Quality Standards Framework for South Africa.* [Available Online: <http://education.pwv.gov.za/teli2/policydocuments/distance5.htm#chapter>].

Purpose: Read this article to consider a practical example of a policy framework promoting good practice in distance education from a developing society country. This framework was not developed by any particular teaching organization but was a government initiative. The South African government developed it.

Unit 2: “Policy Making: Policy and Strategy Considerations and Selected Case Studies”

Reading 1. Khan, A. (2001). Indira Gandhi National Open University and the Distance Education Council: Institution and System Building in India. In C. Latchem & D. E. Hanna. (pp. 147–156). *Leadership for 21st Century Learning*. London: Kogan Page.

Purpose: Read this article to find out the leadership issues Khan discusses in relation to distance education in India. Consider policy considerations related to distance education, especially strategic leadership and management, which Khan mentions in describing his leadership.

Reading 2. Juma, M. N. (2001). From Traditional Distance Learning to Virtual Distance Learning in Higher Education in Africa: Trends and challenges. In F. T. Tschang & T. D. Senta. (Eds.), *Issues in higher education: Access to knowledge – New Information technologies and the Emergence of the Virtual University* (pp. 289–312). Amsterdam: The United Nations University Institute of Advanced Studies.

Purpose: Read this chapter, which examines the African Virtual University (AVU) within the historical context of African distance education, to find out how the emergence of a new form of distance education, the AVU, provides some of the initial building blocks for Africa to engage in the emerging global knowledge economy. As you read, focus on factors and issues having to do with the historical, political, socio-economic, educational, and technological context and its relationship to distance education policy in Africa.

Reading 3. Yoshida, A. (2001). Distance Higher Education and a New Trend of Virtual Universities in Asia . In F. T. Tschang & T. D. Senta. (Eds.), *Issues in Higher Education: Access to Knowledge – New Information Technologies and the Emergence of the Virtual University* (pp. 371–398). Amsterdam: The United Nations University Institute of Advanced Studies.

Purpose: Read this chapter, which examines the current situation of the so-called ‘virtual universities’ in a number of Asia countries, to find out about recent efforts to introduce ICTs into these universities and the trends taking place in virtual universities in some Asian countries. As you read, focus on factors and issues having to do with the socio-economic, educational, and technological trends.

UNIT 1

“General Social, Educational, and Technological Trends and Corresponding Implications for Distance Education Policy”

Before we begin, you will need to establish key indicators relevant to your own country.

Assignment 1

Find a copy of the most recent *World Education Report*, published by UNESCO. You will be able to download the relevant sections from the UNESCO website at <http://www.unesco.org>. Alternatively, you may have alternative sources summarizing the state of educational access in your country.

- What is the gross enrollment in primary, secondary and tertiary education in your country?
- How has this ratio changed over the last few decades?
- How do your ratios compare with the average for developing and highly industrialized nations?
- What percentage of school leavers was able to find a place in tertiary education in your country?
- How many distance education learners are there in your country and what is the proportion of distance learners when compared to face-to-face learners in your country?
- What are the levels of access to different technologies in your country? (Consult the *World Communication and Information Report* published by UNESCO, or figures supplied by other agencies like UNDP, ITU, the World Bank or your own national statistics reports).
- What percentage of your country's national budget is spent on education and how does this compare with other countries?
- What percentage of the income of your own educational institution is derived from public or other external funds or alternatively what percentage of the income of your institution is made up from fees paid by students?

It may take a while to find these figures, but it is very important to get an overall picture of the main indicators in your own country, but also to develop a sense of how this compares with the rest of the world – Remember that you should be able to find most of this information on the Internet.

The dictionary definition of policy is: “A plan or course of action, as of a government, political party, or business, intended to influence and determine decisions, actions and other matters” (Online: www.dictionary.com).

In this unit we will focus in the major issues that will come into play when developing high level plans for sustainable distance education and ICT futures relevant to your own context.

In the everyday routine of professionals involved with Distance Education, policy issues arise at various levels. No matter if you are an instructor, a program or course manager or administrator, a system or course designer, a technical or teacher-learner support person, a librarian, etc., you will certainly feel the effects of the policies that direct your practice.

Understanding the issues effecting policy will help you to achieve greater success in your local initiatives and projects. Having a better understanding of the strengths, weaknesses, opportunities and threats of your own national distance education and ICT policies will help you to be more innovative and effective in your local situation.

For the purposes of this module, you should assume the role of a policy-maker by pretending that you are responsible for reviewing and generating new policy for your own distance education situation.

Let us begin with our analysis of selected global trends.

Worldwide Trends and Policy Implications for ICT-Mediated Learning

At a meta-level, most of the developed economies of the world are increasingly becoming knowledge-based and operate on a global scale, placing high demands on the knowledge requirements of participants in this global economy. Corresponding with this shift from industry-based economies to knowledge-based economies is the unprecedented advance in digital ICTs. Technological change is accelerating rapidly and we find ourselves in a continuous state of flux. Sadly, notwithstanding these exciting developments, a fifth of the world’s population is still deprived of a school education – something that most countries take for granted. For most parts of the developing world, a tertiary education is still something that is reserved for only a few. This is particularly depressing when we consider that effective participation in the sophisticated economies of the world rely on sophisticated knowledge – knowledge that is out of reach for the majority of the inhabitants of our planet.

How will we tackle the challenge of widening access to education? What are the policy implications of this?

Assignment 2

Professor Dhanarajan, current President and CEO of the Commonwealth of Learning has extensive experience of open distance learning. In particular, he was previously responsible for successfully leading the Open University of Hong Kong (previously called the Open Learning Institute of Hong Kong). Originally from Malaysia, Professor Dhanarajan, understands the difficulties facing developing societies yet he firmly believes that digital ICTs hold huge potential for tackling the educational crisis of the world. Read the following interview with Prof Dhanarajan – Dhanarajan, D. G. (2001). Partnerships for Change. In C. Latchem & D. E. Hanna. (pp. 177-185). Leadership for 21st Century Learning. London: Kogan Page. – and consider the questions that follow:

- *In your opinion, what were the major factors underpinning the success of the Open University of Hong Kong in terms of the strategic policies that were adopted? In each case, consider whether these factors should underpin a national policy for distance education.*
- *What social, economic and technological trends are likely to influence the future of distance education?*

The Implication of Socio-economic, Educational, and Technological Trends for Policy Making

We hope you will appreciate as much as we do the “tabled” premises and their associated policy implications that distance education scholars Alistar Inglis, Peter Ling, and Vera Joosten (1999) have put together for us. We have adapted their work for your use in this course.

As part of a study for the Higher Education Council of the United States, Inglis et al (1999) derived a set of policy implications for educational decision-makers from current socio-economic, educational, and technological premises. They started by locating descriptors of the current social and educational context and descriptors of best practice in technology-mediated resource-based learning from the print literature and from sources published on the Web. Inglis et al then validated the trends and policy implications they had identified by submitting them to a panel of approximately 30 experts in ICT-mediated resource-based learning. Inglis et al then derived their set of policy implications and sought validation of them from the same panel of experts used previously. The tables below show the descriptors and policy implications arrived at through the process described.

Instructions for Working with the Four Tables that Follow

Before you begin to read each table that follows (Assignments 3-6), cover the right-hand column of each table "Policy Implications" with a sheet of paper so that you can't read the text in the column. Then read the "Trends" found in the left-hand column. As you read each trend, jot down on paper what you think the policy implications might be.

For each table, after you've jotted down your thoughts, uncover the right hand column and read the text. Then compare your response with Inglis et al's views of "Policy Implications."

Now read Table 1 “Observed Trend Relating to the Current Social and Educational Context and Implications for Policy Making,” following the above directions.

Do the same thing with all four tables.

Assignment 3:

We would like you write down what you consider the policy implications that go with each trend. Then compare your responses to Inglis et al. Do this in about 50 words.

Above all else be sure to think of yourself as a decision-maker who will help to create and apply policy. Please remember what follows is based on best practice in technology-mediated learning. Your context might be considerably different from what is reported on here. As you read think of how each trend compares to your own local situation. Does the respective trend apply, or not?

Table 1: Observed Trend Relating to the Current Social and Educational Context and Implications for Policy Making (Adapted from Inglis, A., Ling, P., & Joosten, V. (1999). *Delivering Digitally: Managing the Transition to the Knowledge Media*. London: Kogan Page, pp. 20-22).

Trend	Policy Implications
Economic and social change is generating new demands for lifelong learning which will not be satisfied in terms of quantity, quality, or convenience by traditional face-to-face educational programs.	Policies must (it is not an option) create and apply new approaches to the provision of education and training. This includes applying new learning technologies, in particular ICTs where appropriate.
Students are driving policies of public educational providers, who, in some countries, no longer are the only source of providing education. These students are demanding services more responsiveness to their requirements.	Policies must consider how organizations will get and keep students. In some countries this is not so easy as it once was. Indeed competition, costs, and productivity are a concern of education providers in both the public and private education sectors.
Workforce requirements will change dramatically to meet modern technological and global market developments. As a result, the demand for ICT-delivered education and training will grow exponentially.	Colleges and universities risk losing relevance, if they wait for the results of longitudinal research before making an investment in electronically-mediated learning. Rather they need to learn from their understandings of others' best practice, which takes less time.
The distinction between on-campus (face-to-face) and off-campus (distant) educational programs will continue but is diminishing. On-campus programs are adding learning features, such as distant learning delivered via the Web and which might contain video and/or audio, that enable time and place flexibility. Off-campus programs will continue to offer learning support via face-to-face resident tutorials and labs, which they have done for some time, and will move toward incorporating even richer forms of multi-media---media in the past that was primarily available in face-to-face classrooms (if at all).	Policies need to accommodate new approaches to student administration and learning needs. The primary reason is that learners have become customers who want variety in learning activities, access to a wide variety of learning materials, and flexibility of place-time.
The availability and use of new ICTs for providing education and the extent of change taking place in the processes of education is overstated.	In creating policies decision-makers need to be extra careful with respect to applying untried learning solutions, or those with no learner demand, or those not preferred by learners, and which may not be accessible to potential learners.
Face-to-face classes, many of them large lectures, remain the way that most teaching is delivered.	Policy -makers need to carefully research both market demands and the customers'/students' ability to access and use proposed technology, in particular modern ICTs.

Trend	Policy Implications
Student–learner expectations and government policies and procedures demand greater accountability and reporting.	Policies for evaluating qualitatively and quantitatively the outcomes of ICT–mediated learning are critical because of students’ high expectations and public demand for educational accountability/quality.

Next, read Table 2 “*Observed Trend with Respect to Technical Developments and Implications for Policy Making*”, following the directions as given above.

Assignment 4:

We would like you write down what you consider the policy implications to be that go with each trend. Then compare your responses to Inglis et al. Do this in about 50 words.

Above all else be sure to think of yourself as a decision-maker who will help to create and apply policy. Please remember what follows is based on best practice in technology-mediated resource-based learning. Your context might be considerably different from what is reported on here. Because, however, this course is intended to educate you in distance education with current ICTs, we decided to give this a try. As you read think of how each trend compares to your own local situation. Does the respective trend apply, or not?

Table 2: Observed Trend with Respect to Technical Developments and Implications for Policy Making (Adapted from Inglis, A., Ling, P., & Joosten, V. (1999). *Delivering Digitally: Managing the Transition to the Knowledge Media*. London: Kogan Page, pp. 22-23).

Trend	Policy Implications
Students and teachers will increasingly use ICTs (especially networked technologies such as the WWW) for sharing knowledge. This contrasts with what has typically been the norm, that is, printed books and journals which were accessed through purchase or libraries.	<p>Policies need to redefine libraries and the relationship between libraries and computing services. Providing for online and/or CD–ROM, that is, electronic/ICT delivery of reference materials needs to be emphasized. And providing on–campus facilities for access to print–based materials needs to be de–emphasized.</p> <p>The applicability of any copyright fair dealing concessions (which apply to print) to digitized material requires clarification along with copyright and intellectual property rights for material developed by a provider.</p>
Digital technologies of all kinds will be made greater use of in education and will contribute effectively in most learning situations.	<p>Policies need to clarify expected learning outcomes, to design with an effective media mix in mind, and to provide for quality learning support.</p> <p>The reason is so that digital learning resources can be created and applied in a quality way. The key point is that educational principles, rather than technological capacity must be the basis for applying digital learning resources (ICTs).</p>
Technology alone will not solve the problems of increasing access to higher education.	Policies need to provide for flexible admission policies, for recognition of prior learning, for communication with potential students (customers), and for sharing appropriately the cost.

Trend	Policy Implications
<p>Ad hoc (that is, happening per chance by creative endeavors of individuals instead of my strategic and systematic planning) developments with respect to distance education and applying ICTs are occurring in many institutions.</p> <p>Generally, substantial change is not produced by small-scale innovations; thus in our view is not usually a good thing.</p>	<p>Policies need to be created and applied at an organizational level rather than left to individual initiative, given the demands for a significant shift in the modes of education–training provision.</p> <p>To integrate the new technologies into mainstream teaching–learning, developing committed leadership and staff are critical.</p>
<p>Existing university and inter–university ICT infrastructure will not accommodate the development of good quality digitally based programs on a large scale.</p>	<p>Policies must consider both the ICT hardware and software and the educational infrastructure needed, when planning for educational–training programs. Of significance, the infrastructure required to support large scale use of ICT–based education–training has yet to be determined.</p>

Assignment 5:

We would like you write down what you consider the policy implications to be that go with each trend. Then compare your responses to Inglis et al. Do this in about 50 words.

Now, read Table 3 “*Observed Trend Relating to Costs and Benefits and Implications for Policy Making*”, following the directions given above.

Above all else be sure to think of yourself as a decision-maker who will help to create and apply policy. Please remember what follows is based on best practice in technology-mediated resource-based learning. Your context might be considerably different from what is reported on here. Because, however, this course is intended to educate you in distance education with current ICTs, we decided to give this a try. As you read think of how each trend compares to your own local situation. Does the respective trend apply, or not?

Table 3: Observed Trend Relating to Costs and Benefits and Implications for Policy Making (Adapted from Inglis, A., Ling, P., & Joosten, V. (1999). *Delivering Digitally: Managing the Transition to the Knowledge Media*. London: Kogan Page, p. 24).

Trend	Policy Implications
<p>Some propose that ICT–based distance education is heavy on development costs and light on delivery costs, while traditional face–to–face education is light on development costs and heavy on delivery costs. This should not be accepted at face value.</p> <p>Costing studies by scholars suggest the economies of scale for use of the new knowledge media plateau, after a critical enrollment is reached. The development and operational costs do not suggest that the new knowledge media can offer a cheaper means of providing effectively for the current levels of enrollment.</p>	<p>Before policies are created, decision–makers need to carefully cost out ICT–based distance education, carefully considering the learning processes that need to be put in place for learning to be effective. In other words, they need to consider teacher/tutor–learner interaction and learner–learner interaction, which constitutes a continuing operational expense in addition to program/course development costs.</p>

Trend	Policy Implications
<p>While ICT-based distance education offers prospects for improvements in the quality of higher education and prospects for dealing with large student enrollments, most research into ICT-based distance education has failed to find any significant difference in learning outcomes between traditional and ICT-based innovations.</p> <p>The important thing to note is that it is not the technology and media that directly influences the quality of learning outcomes. Instead course design, instructor-learner, and contextual factors likely make more of a difference.</p>	<p>Policies with respect to distance education and ICTs need to be based on something other than the idea that we are improving the quality of education-training, unless the decision-makers can build a case that a particular form of technology and/or media produces better learning.</p>
<p>The cost of developing and operating ICTs (considering here primarily digital technologies) can be high.</p>	<p>Decision-makers need to consider collaboration among organizations in developing and applying ICTs, given the market-place is so very competitive, before they create policies.</p>

Finally, read Table 4 "Observed Trend Relating to Access and Equity and Implications for Policy Making", following the directions given above.

Assignment 6:

We would like you write down what you consider the policy implications to be that go with each trend. Then compare your responses to Inglis et al. Do this in about 50 words.

Above all else be sure to think of yourself as a decision-maker who will help to create and apply policy. Please remember what follows is based on best practice in technology-mediated resource-based learning. Your context might be considerably different from what is reported on here. Because, however, this course is intended to educate you in distance education with current ICTs, we decided to give this a try. As you read think of how each trend compares to your own local situation. Does the respective trend apply, or not?

Table 4: Observed Trend Relating to Access and Equity and Implications for Policy Making (Adapted from Inglis, A., Ling, P., & Joosten, V. (1999). *Delivering Digitally: Managing the Transition to the Knowledge Media*. London: Kogan Page, p. 25).

Trend	Policy Implications
<p>The new ICTs provide the benefit of being able to better customize educational-training programs, to better accommodate individual learning styles and individual student goals, and to better provide convenience for both students and educational staff.</p>	<p>Educational policies should specify the potential benefits, primarily that of flexibility, of the new ICTs-knowledge media.</p>
<p>The effects on groups targeted for equitable access and learning opportunities with respect to new ICT-based distance learning are not clear. What we know is that the limited access these groups have to computers in the home might further relatively disadvantage them.</p>	<p>Policy and provision arrangements need to provide for learners who do not have home, work, or community access to the hardware and software required to use the new ICT-based distance learning-knowledge media.</p>
<p>There is a bias toward providing courses in the humanities and business rather than science and technology. This in effect limits access to educational programs for potential students.</p>	<p>Decision-makers may need to make special provisions in their policies to encourage the development of ICT-based educational-training resources in the areas of science and technology and other fields.</p>

Let us now consider a practical example of a policy framework promoting good practice in distance education from a developing society country. This framework was not developed by any particular teaching organization but was a government initiative. The South African government developed it.

Assignment 7:

Using the policy framework guidelines presented in the second reading “A Distance Education Quality Standards Framework for South Africa” for Unit 1, create a table with the guidelines in one column and information regarding your own institution in another column. Then reflect on how the two compare.

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Unit Closing

To summarize in the first unit of Module 6 you have:

- Summarized the state of educational access in your country.
- Developed a sense of how the state of educational access in your country compares with the rest of the world.
- Identified the major factors underpinning the success of the Open University of Hong Kong in terms of the strategic policies that were adopted, and in each case, considered whether these factors should underpin a national policy for distance education.
- Explained what social, economic and technological trends are likely to influence the future of distance education.
- Thought about best practice as reflected in policy guidelines, comparing them to your own institution.

You are continuing in the role of a decision-maker! Imagine that you’re going to be part of a team responsible for creating and applying educational policies within your own organization.

Now that you’ve had the opportunity to learn about worldwide trends and associated implied policies with respect to distance education, let’s turn our attention to various factors to be considered when planning for distance education. After we have considered planning, we will briefly discuss policy in light of distance learning for social and economic development (which we have discussed somewhat earlier in the course).

Planning for Distance Education

Before drafting policy, what follows is a general list of factors to think about and consider (from the perspective of planning for national policy with respect to distance education):

1. There are a number of fundamental questions you will need to consider when tackling policy development for distance education (adapted from Tait):
 - Why use distance education? How does it relate to regional and national, and perhaps even international goals? How will you tie your strategic plan to national and regional goals?
 - For what sectors of society and specific groups of students will the national distance education initiative target?
 - How will open and distance learning function in relation to the conventional face-to-face system? Will it be tied directly to it, or will it be a separate program?
 - Will a single, dual, or some other type institutional structure be used and why?
 - What are the roles of existing systems and structures? [Is the current system designed to provide most of the policy strength at the a national- or centralized-level, or is it designed to provide strong decentralized institutional support with many sub-organizations within the system given a relatively strong voice in policy-making?]
 - What policies are being made by the private sector, which is moving heavily towards distance education?
 - What are the future prospects for distance education?
 - What are the resources needed and infrastructure requirements?
 - How will distance education be developed and sustained?
 - How will you train the all the personnel required in your distance education system?
 - What will be the mechanisms for coordination of components within the system (such as management, course development, teaching support, learning support, technical, etc.), funding, and quality promotion and quality assurance?
 - What measures are necessary for recognition of equivalence of course credits among various institutions?
 - What legislative changes are needed (and are taking place) to support distance education?
 - What is the state of the technological infrastructure, and do we need to effect change to put a supportive technological infrastructure in place?
 - How will distance education work within a range of modes of flexible study opportunities, part and fulltime, as distance delivery and face-to-face classroom instruction somewhat ‘blend’ together?
 - What will the impact of internationalization and borderless education have on you local system, if you consider the wide number of potential international providers that can operate within your country?
2. Consider and invite all who should be involved in planning to the table.
 - Visible and strong leadership is absolutely critical.
 - Educational planners, managers, and administrators; politicians; distance education experts, information and communication technology specialists, media experts, economists, teacher, potential students, etc.
 - Local, national, and international levels should work together.

[Keep in mind, for national policy setting – international and regional bodies often provide important sources of information on policies, existing institutions and structures, methodologies, technologies, learning material and other resources, research findings and experiences, sources of funding and possibilities of international cooperation. For example, The International Center for Distance Learning (ICDL) based at the British Open University is a good source of information.]

3. Policies that are sanctioned from a national level help to promote the credibility of qualifications obtained through distance education from the students' perspective and promotes national awareness throughout the government system enhancing integration and planning, for instance funding policy for distance education.
4. Consider what new types of partnerships and alliances might be possible, since existing institutions need to develop new types of partnerships and alliances in order to meet the needs of society in more effective ways than most do today.
 - Partner with similar institutions beyond your own educational institution's sphere of influence to share resources and use products in a larger market.
 - Form alliances with different forms of institutions to widen their range of services and achieve synergy and increase impact in the market. In other words, an educational organization might cooperate with transnational companies with efficient and advanced private communication networks, which might create added value for education and training purposes. This could be particularly useful for developing countries with weak communications infrastructures.
5. When developing policy a holistic and integrated approach is recommended. This means:
 - Consider the requirements of different sectors of society such as governance, health, agriculture, telecommunications, and education.
 - Consider the needs of different educational levels, that is primary, secondary and tertiary levels.
 - Consider the support needs of teachers and learners.
 - Consider the technological infrastructure needed.
6. The question of sustainability and cost-effectiveness must be carefully addressed by national planners. Just because there is a large potential group of students does not mean distance education is necessarily the most cost-effective solution. You need to develop a distance education system that is appropriate for the country concerned in conjunction with criteria such as: language; cultural identity; and learning styles.
7. Additional issues that must be considered are:
 - How can you make the best use of resources in a cost-effective way. (This does not necessarily mean this will be the one with the lowest total cost.)
 - Will your distance educational institution have sufficient resources to be able to react quickly to meet new demands?
8. Keep in mind there are barriers to the effective implementation of distance education (of course, the examples listed do not only apply to developing countries).

To identify a few of the most important ones:

- Lack of funding and lack of continued, sustained support are likely the most critical. (Many assume distance education is a low cost alternative and fail to provide the funds needed to keep quality programs going. This, of course, negatively impacts learning outcomes.)
- Lack of human resources who are competent and motivated, particularly concerning distance education methodology and technology.
- Lack of technological infrastructure.
- Lack of strategic planning and coordination, including a fully detailed plan of goals and priorities.

9. Finally, you will need to think about the following aspects:
- Bridging the Digital Divide (we've discussed this previously).
 - Accreditation, this is, recognition, by a regulatory agency or governmental Ministry, of the education provided at a distance. Existing legislation in some countries may pose obstacles to the accreditation of distance education programs, while in other countries, legislation may be more accommodating regarding the accreditation of distance education.
 - Prerequisite qualifications required of distance educators and policies for professional development. (In some countries, a formal requirement may be established, such as official certification by qualified teacher-training programs. In others, this may not be necessary, notwithstanding the unique requirements of distance teaching.)
 - Program evaluation and quality standards, which are usually determined by Ministries of Education, or various boards that perform assessment (some of which might be worldwide and others national or regional).
 - Faculty-related issues such as authorship/copyright, faculty remuneration (in the case of dual mode – explain what you mean) and part-time versus full-time staff proportion in the organization. (Needs more explaining, in the US for example, intellectual property rights are dealt with differently than many other countries - again we are mixing macro and micro policy issues.)

[As used here, authorship refers to the intellectual property of materials developed. If faculty members produce materials, are those materials theirs or the property of the institution where they work? Do institutions pay for the hours instructors expend interacting through e-mail with learners, an item that is commonly very time-consuming? In the case of dual-mode institutions, these are especially delicate issues, since faculty are often working both at a distance and with face-to-face courses.

In distance education, it is possible to employ part-time personnel extensively. Tutors, instructors, content experts, instructional designers and technology experts may be hired part-time or even temporarily as consultants. However, what are the implications of this for the organizational climate and morale? What is the correct balance between full-time versus part-time personnel? Of course, each case is going to be unique when making those decisions. The availability of funds and the best arrangement to guarantee superior quality are probably the most important factors to support decision-making.]

Assignment 1

From the general list of factors adapted from Tait (as presented above), select the 5 most important considerations for your own context. Also, rank these according to importance and explain why.

To summarize, the policymaking processes, you need to consider many questions. First at a meta-level, the historical, political, socio-economic, educational, and technological contexts must be examined. The global trends and policy considerations identified in this unit serve as a good example.

With respect to policy, studying real situations is a way to learn what happens as a result of making and applying various policies. Therefore, the remainder of this Unit presents three distance education case studies from developing countries. In each case, we will attempt to identify key aspects that have been responsible for their respective successes, and consider how these can inform future policy in distance education in your own situation. At the same time, we must also consider the respective barriers and challenges that these organizations have faced in the past, and extrapolate ideas for distance education policy specially designed to avoid repeating these problems in your own country.

Our first case study is Indira Gandhi National Open University (IGNOU). IGNOU is one of India's single-mode distance education universities. Apart from dealing with an overwhelming demand for tertiary education in India, IGNOU is driven by the vision of targeting disadvantaged groups, who very often reside in remote locations with limited ICT infrastructure. IGNOU is committed to enhancing the use of

appropriate ICTs in its delivery model and strives to find ways of continually improving the quality of its delivery system.

Assignment 2

Read the following interview with Abdul Khan (the previous Vice-Chancellor of IGNOU and currently the Assistant Director General for Communication and Information of UNESCO) – Khan, A. (2001). *Indira Gandhi National Open University and the Distance Education Council: Institution and System Building in India*. In C. Latchem & D. E. Hanna. (pp. 147-156). *Leadership for 21st Century Learning*. London: Kogan Page. Then answer the respective questions:

- List the policy implications for distance education relating to the three aspects of access to technology that Khan has identified.
- What ICTs has IGNOU implemented to widen for learners residing in remote locations?
- List the policy implications of the major barriers and stumbling blocks with regards to rolling out ICT access in India.

Our second case study focuses on the experience of the African Virtual University. This initiative is predominantly a distributed classroom model that uses satellite technology. Lectures from participating universities in North America are relayed to a number of sites throughout Africa.

Assignment 3

Read Juma, M. N. (2001). *From Traditional Distance Learning to Virtual Distance Learning in Higher Education in Africa: Trends and Challenges*. In F. T. Tschang & T. D. Senta. (Eds.), *Issues in Higher Education: Access to Knowledge – New Information Technologies and the Emergence of the Virtual University* (pp. 289-312). Amsterdam: The United Nations University Institute of Advanced Studies. Then respond to the following questions:

- List the policy implications you would recommend for your country based on your assessment of what Juma believes to be the shortcomings of distance education in Africa.
- Describe the African Virtual University delivery system using the four distance teaching functions presented in Module 2.
- List the strengths and weaknesses of the African Virtual University project and then describe the policy implications of your analysis with particular emphasis on the successful implementation of digital ICTs in your own country.

[Please note: To avoid potential misunderstandings that may originate because of discrepancies between the paper by Juma and your course material, the following comments are necessary: Juma begins her paper with a historical overview of correspondence study and distance education in Africa, which documents the diverse experience of distance education on the Continent. In this section on p. 292, UNISA is reported to have become a single mode provider in 1964. This is incorrect. UNISA began with its distance education initiative in 1946. The error has arisen from an erratum in the primary source published by Roberts and Associates. Furthermore, intra-mural courses cannot be classified as distance education as suggested by the typology used in this paper because they are taught using conventional face-to-face lectures.]

A last case study is in fact a series of mini-case studies documenting the Asian experience of technology enhanced distance learning. Yoshida (2002) uses the concept “Virtual University” which is defined broadly by Yoshida as “computer-based distance higher education”. Therefore these case studies focus on the implementation and integration of digital ICTs in distance education.

Assignment 4

Read the following article – Yoshida, A. (2001). *Distance Higher Education and a New Trend of Virtual Universities in Asia*. In F. T. Tschang & T. D. Senta. (Eds.), *Issues in Higher Education: Access to Knowledge – New Information Technologies and the Emergence of the Virtual University* (pp. 371-398). Amsterdam: The United Nations University Institute of Advanced Studies. Then answer the questions which follow:

- *In about 75 words summarise the distance education delivery systems used in Asia.*
- *To what extent do the complications with using digital technologies in Asia correspond with you local distance education situation?*
- *Yoshida discusses a number of virtual university initiatives in Asia. Based on your reading of these examples, identify which forms of technology enhanced distance education would be most appropriate for your situation. List the policy recommendations you would make to support the technology-enhanced distance education solutions you have identified.*

Unit Closing

To summarize in the second unit of Module 6 you have:

- With respect to policy, considered a general list of factors adapted from Tait and selected the five most important considerations for your own context and ranked these according to importance.
- Read a 2001 interview with Professor Abdul Khan (the previous Vice-Chancellor of IGNOU and currently the Assistant Director General for Communication and Information of UNESCO). Then listed the policy implications for distance education relating to the three aspects of access to technology that Khan has identified; addressed what ICTs IGNOU implemented to widen for learners residing in remote locations; and listed the policy implications of the major barriers and stumbling blocks with regards to rolling out ICT access in India.
- Read “From Traditional Distance Learning to Virtual Distance Learning in Higher Education in Africa: Trends and Challenges” by Juma (2001) and the listed the policy implications you would recommend for your country based on your assessment of what Juma believes to be the shortcomings of distance education in Africa; described the African Virtual University delivery system using the four distance teaching functions presented in Module 2; listed the strengths and weaknesses of the African Virtual University project; and then described the policy implications of your analysis with particular emphasis on the successful implementation of digital ICTs in your own country.
- Read “Distance Higher Education and a New Trend of Virtual Universities in Asia” by Yoshida (2001) and then summarized the distance education delivery systems used in Asia; explained the extent to which the complications with using digital technologies in Asia correspond with you local distance education situation; identified which forms of technology enhanced distance education would be most appropriate for your situation.
- Listed the policy recommendations you would make to support the technology-enhanced distance education solutions you have identified.

Appendix A *Glossary*

Distance Education Terms:

This page contains a glossary of basic distance education terms to help you understand basic terms contained in this learning module.

Assignments:

Work produced by students and used by instructors for purposes of interaction and also evaluation.

Asynchronous:

A type of two-way communication that occurs with a time delay, allowing participants to respond at their own convenience. Literally not synchronous, in other words, not at the same time. Example of an application of asynchronous communication is electronic bulletin board.

Audioconference:

An electronic meeting in which participants in different locations use telephones or audioconferencing equipment to interactively communicate with each other in real time. The number of participants may be as small as 3 or as large as 100 or more.

Authoring Software/Tools:

High level computer programs designed for use by non-programmers in the creation of computer-based training, interactive presentations, and multimedia. The commands are presented as simple terms, concepts, and icons. The authoring software translates these commands into the programming code needed by the computer and related hardware devices.

Bandwidth:

Maximum frequency that can be used to transmit a communication signal without excessive distortion. Measured in Hertz or cycles per second. The more information contained in a signal, the more bandwidth it requires for distortion-free transmission.

Browser:

Software that allows you to “surf “ the Internet. Netscape, Mosaic, and Internet Explorer are examples of Web browsers. A browser provides an easy to use interface for accessing the information on the World Wide Web.

Cache:

Memory that holds copies of recently accessed data. Several Web browsers keep recently viewed pages in a cache so users can return to them quickly without suffering network delays.

Chat:

Two or more individuals connected to Internet have real-time text-based conversations by typing messages into their computer. Groups gather to chat about various subjects. As you type, everything you type is displayed to the other members of the chat group.

Course design:

Setting learning objectives, choosing media applications planning, evaluation and preparing instructional strategies in advance of student recruitment.

Course team:

Group of specialists in content instructional design, learning and technologies convened to produce distance education course.

Computer Assisted Instruction (CAI):

Teaching process in which a computer is utilized to enhance the learning environment by assisting students in gaining mastery over a specific skill.

Cyberspace:

The nebulous “place” where humans interact over computer networks. Coined by William Gibson in *Neuromancer*.

Dial-Up Teleconference:

Using public telephone lines for communications links among various locations.

Desktop Videoconferencing:

Videoconferencing on a personal computer equipped with a fast Internet connection (at least 28.8 Kbps modem), a microphone, and a video camera. There can be two-way or multi-way video and audio depending upon the hardware and software of participants. Most appropriate for small groups or individuals. Not yet presently available in many parts of the country due to bandwidth and equipment limitations for this application.

Digital:

An electrical signal that varies in discrete steps in voltage, frequency, amplitude, locations, etc.. Digital signals can be transmitted faster and more accurately than analog signals.

Digital Communication:

A communications format used with both electronic and light-based space systems that transmits audio, video, and data as bits (“1s” and “0s”) of information. Codecs are used to convert traditional analog signals to digital format and back again. Digital technology also allows communications signals to be compressed for more efficient transmission. See Analog Communication.

Distance communication:

Use of telecommunication technology for the implementation of administrative activities such as meetings, focus group, or job interviews when the parties are located at two or more locations.

Distance education:

Teaching and learning in which learning normally occurs in a different place from teaching. The is often used synonymously with distance learning. However, distance education typically refers to distributed learning resources in academic settings.

Distance education courses:

Structured programs of instruction for learners in a different place from the teacher, having learning objectives, one or more teachers, a medium of communication, and subject matter.

Distance education system:

All the component processes that result in distance education, including learning, teaching, communication, design, and management

Distance education Institution:

College, university or school system organized exclusively for distance education.

Distance learning:

Term often used as synonymous with distance education, not strictly correct since distance education includes teaching as well as learning. Distance learning is a system and a process that connects learners with distributed learning resources. While distance learning takes a wide variety of forms, all distance learning is characterized by the following: 1) separation of place and/or time between instructor and learner, among learners, and/or between learners and learning resources, and 2) interaction between the learner and the instructor, among learners, and/or between learners and learning resources conducted through one or more media; use of electronic media is not necessarily required.

Distance education Consortium:

Two or more distance education institutions or units that share in designing distance education courses, teaching them, or both.

Distance education Unit

A special unit dedicated to distance learning within a conventional college, university or school system

Downloading:

A procedure for transferring or retrieving a file from a distant computer. Opposite of uploading. Many Web sites have links to files such that you can simply click on the link and your browser will handle the downloading of the file(s) to your computer.

Economies of scale:

Effect on unit cost of producing large quantities, in distance education the larger the number of users of a course or the larger the number of users of the system, the lower the cost for each person.

Electronic Bulletin Boards:

Information services that can be reached via computers connected by modem and/or Internet. With these services users can gather information, place and read electronic messages from other users, and download available files.

Electronic Mail:

More often called E-Mail. E-mail is a fast, easy, and inexpensive way to communicate with individuals or groups on networked computers and computers equipped for Internet access. Besides basic correspondence, with some systems you can attach and send documents and other files.

Email attachments:

Programs and documents can be sent “attached” to email messages. These attachments are not part of the message, and must be read or viewed separately. Attachments do not have to be text documents; any computer file (images, programs, spreadsheets, etc.) can be attached to email. Most email programs allow you to attach information in this way.

HyperText Markup Language (HTML):

is the code used to write most documents on the World Wide Web. HTML codes (called “tags”) tell your browser how to arrange/place text, images/graphics and sound on the computer screen You can write the code yourself using any text editor, or can use any one of several commercially available HTML editors to create a document.

Home Page:

The first page that your browser will open when you access a Web address (URL). The home page generally serves as a gateway to the rest of the Web site by providing links to the other pages. The file that generates the page is usually called “index.html”

http:

hypertext transfer protocol (http) is the standard method used to transfer data in HTML format from server to a remote computer. Web addresses often begin with http://, indicating that the documents you will access are written in HTML.

Hyperlinks:

Text or images on a Web page that, when clicked with a mouse, cause your browser to load another page of HTML. Because a simple mouse click allows the user to easily go from one page of hypertext to another, these pages are said to be “hyperlinked.” Text links are usually (but not always) underlined in blue, while hyperlinks that are images often take the form of “buttons.”

Icon:

A small graphic symbol that represents a program, file, or folder on a computer. Clicking on an icon with a mouse generally causes the program to run, the folder to open, or the file to be displayed (if possible).

Interaction:

Exchange of information, ideas, opinions between and among learners and teachers, usually occurring through technology with the aim of facilitating learning.

Integrated Services Digital Network (ISDN):

Digital network with higher speed than found on the traditional telephone network. Even though ISDN uses existing phone lines, it does require specialized equipment. Because the network is entirely digital it can easily send voice, data, and video over the same line simultaneously.

Internet:

A worldwide network of computer networks. It is an interconnection of large and small networks around the globe. The Internet began in 1962 as a resilient computer network for the U.S. military and over time has grown into a global communication tool of more than 12,000 computer networks that share a common addressing scheme.

Internet Courses:

Students participate in the class by using the Internet for all or part of the coursework. The instructor posts a Web page which contains all relevant course information and assignments. Communication between students and instructors occurs by e-mail.

Instructors (also tutors)

Specialists in learning who interact through technology with students as they learn content, usually designed by course team, though quite often by the instructors themselves.

Instructional Multimedia:

A form of computer-based training that incorporates a mix of media as the stimulus to the student. Possible media elements include sound, animation, graphics, video, text; whatever it takes to get the instructional message across to the target audience. (See Multimedia)

Instructional Systems Development:

Systematic approach to the planning and development of a product to meet instructional needs and goals. All components of the system are considered in relation to each other in an orderly but flexible sequence of processes. The resulting instructional product is tried out and improved before widespread use is encouraged.

LISTSERV/listservs:

Electronic mail-based discussion groups. Users submit their names to the LISTPROC server via email and are added to the list, Users then receive all email messages that are sent to the list. LISTSERVs are a convenient way for people to electronically discuss a common interest.

Media:

Messages that are distributed through technologies, principally text in books, study guides and computer networks; sound in audio-tapes and broadcast; pictures in videotapes and broadcast; text, sound and/or pictures in a teleconference.

Multimedia:

Systems that support the interactive use of text, audio, still images, video, and graphics. Each of these elements must be converted in some way from analog form to digital form before they can be used in a computer application. Thus, the distinction of multimedia is the convergence of previously diverse systems.

Network:

A configuration of two or more computers linked to share information and resources.

News Group:

Discussion group on the Internet. Similar to electronic bulletin boards. Users are presented with a summary of discussion topics and can select from an organized menu and sub-menu structure.

Synchronous

A type of two-way communication that occurs with virtually no time delay, allowing participants to respond in real time. Also, a system in which regularly occurring events in timed intervals are kept in step using some form of electronic clocking mechanism. (See Asynchronous).

Technology:

Mechanisms for distributing messages, including postal systems, radio and television broadcasting companies, telephone, satellite and computer networks.

Telecommunication:

The process of transmitting or receiving information over a distance by any electrical or electromagnetic medium. Information may take the form of voice, video, or data.

Teleconference:

Simultaneous conference to multiple sites distributed via audio (phone or other audio). Satellite videoconferences and videoconferences using compressed video are sometimes referred to as “teleconferences.” To distinguish more accurately between these frequently used terms, using the term, which uniquely describes the communication is preferred.

Threaded email discussions:

Commonly used on newsgroups or listservs, these are indexes which allow a user to follow one particular subject in a series of email messages. Because email lists often receive a large number of messages on diverse topics, it can often be difficult to follow a single discussion. When messages are threaded, all messages are grouped together by topic making it easier to follow a single line of argument.

Uploading:

The transfer of copies of a file from the user’s own computer to a remote database or other computer. The reverse of downloading.

URLs (Uniform Resource Locators):

Pronounced “earls”. The address system used by the Internet to locate resources such as web sites. An URL includes the type of resource being accessed such as gopher or hypertext), the address of the server, and the location of the file. For example, the complete URL for the PHTN Web site is <http://www.cdc.gov/phtn/index.htm>. “http://” indicates the access method as Hyper Text Transfer Protocol. “www.cdc.gov” is the address of the server. “/phtn/” specifies the directory the file is located. “index.html” is the initial page of the PHTN Web site. Web browsers will assume “http://” and “index.html”, so you can simply use <www.cdc.gov/phtn> as the URL.

Videoconference:

A meeting, instructional session, or conversation between people at different locations relying on video technology as the primary communication link. Communication is 2-way audio with either 1-way or 2-way video. The term, videoconference, is sometimes used to refer to conferences via compressed video, conferences via land lines, and broadcasts via satellite. To avoid confusion, using the term or phrase which uniquely describes the communication technology is recommended

Web-site:

Related collection of web documents. The address for a web site (see URL) takes you to the initial page, or home page. From the home page you can go to all the other pages on the web site.

World Wide Web (WWW):

A hypertext-based, distributed information system originally created by researchers at CERN, the European Laboratory for Particle Physics, to facilitate sharing research information. The Web presents the user with documents, called web pages, full of links to other documents or information systems. Selecting one of these links, the user can access more information about a particular topic. Web pages include text as well as multimedia (images, video, animation, sound). Servers are connected to the Internet to allow users to traverse (or “surf”) the Web using a Web J.

Appendix B

References, Journals, and Websites

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Distance Education Journals We Suggest

The American Journal of Distance Education

Distance Education

The International Review of Open and Distance Learning

The Journal of Asynchronous Learning Networks

Journal of Distance Education

Open Learning

Note: There are many other fine journals produced around the world --- some of which are published in developing countries. Your instructors and/or tutors can suggest appropriate professional journals, depending on your countries of origin.

Websites We Suggest

1. <http://www.TechKnowLogia.org/>

Published by Knowledge Enterprise, Inc. in editorial collaboration with United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Organization for Economic Co-operation and Development (OECD) TechKnowLogia is an international online journal that provides policy makers, strategists, practitioners and technologists at the local, national and global levels with a strategic forum to:

- **Explore** the vital *role* of different information technologies (print, audio, visual and digital) in the development of human and knowledge capital;
- **Share** policies, strategies, experiences and tools in harnessing technologies for knowledge dissemination, effective learning, and efficient education services;
- **Review** the latest systems and products of technologies of today, and peek into the world of tomorrow; and
- **Exchange** information about resources, knowledge networks and centers of expertise.

2. <http://www.firstmonday.org>

With its server at the University of Illinois Chicago, First Monday is one of the first peer-reviewed journals on the Internet, solely devoted to the Internet. Since its start in May 1996, First Monday has published 342 papers in 69 issues. The journal publishes original articles about the Internet and the Global Information Infrastructure and has the following aims and scope:

- follow the political and regulatory regimes affecting the Internet;
- examine the use of the Internet, by analyzing economic, technical, and social factors;
- review research and development of Internet software and hardware;
- study the use of Internet in specific communities;
- report on standards; and,
- discuss the content of the Internet.

3. <http://www.col.org>

The web site leads to information about the Commonwealth of Learning, an intergovernmental organization created by Commonwealth heads of governments to encourage the development and sharing of open learning/distance education knowledge, resources and technologies. COL aims at helping developing nations improve access to quality education and training. The site has a wealth of links to news and features, programs and services, and knowledge.

COL also has a site (<http://www.col.org/forum/forum.htm>) that links to forum papers/abstracts that are rich with information about open and distance learning from several commonwealth countries including: Botswana, Bangladesh, Australia, New Zealand, Zimbabwe, Namibia, Papua New Guinea, Solomon Islands, Nigeria, UK., Jamaica, India, Cameroon, Barbados, Canada, Malaysia, Lesotho, Hong Kong, Uganda, Namibia, Guyana, South Africa, Malta and Sri Lanka.

4. <http://www.unesco.org>

This is a UNESCO site that provides links to important information. There are such links as: documents, publications, statistics, activities and partners. The link to publications will guide you to some of UNESCO's unique and large-scope publishing projects in different fields of interest including:

- Education for the Twenty-first Century
- The UNESCO Thesaurus
- Index Translationum

5. <http://www.aln.org>

This web site will, lead you to The Journal of Asynchronous Learning Networks (JALN) a journal “published on-line by Vanderbilt University for the ALN Center. Responsibility for the contents rests upon the authors and not upon Vanderbilt University.

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6. <http://www.usability.gov>

Usability.gov is a “resource for designing usable, useful and accessible Websites and user interfaces,” and is itself a fair model of usability, usefulness and accessibility. Although the site, from the United States’ National Cancer Institute <http://www.nci.nih.gov>, is designed with health-related websites in mind and with the ultimate goal of “improving the communication for cancer research,” it offers a wealth of usability information that is applicable for user interface design in any field.

The content of the site is current and accurate, and includes many selective and well-annotated links to complementary resources on usability, accessibility and related topics. It is divided into ten categories:

- Usability Basics
- Methods for Designing Usable Web Sites: from planning to promotion
- Guidelines & Checklists
- Lessons Learned (from the NCI’s own experience)
- Server Log Analysis
- Statistics & Market Research (on Internet usage and trends)
- Accessibility Resources
- Links to Other Usability Sites
- Events & Meetings
- Newsletters & Current Publications

Also included are a glossary, a “what’s new” section, and contact information.

The TAD Consortium

The TAD Consortium is an e-mail service aimed primarily at people interested in using information and communication technologies to improve the quality of education in the developing world.

If a colleague has forwarded this message to you and you wish to receive it directly, please send an e-mail to neilshel@icon.co.za with a request to be added to the TAD Consortium list.

Regards,
Neil Butcher

7. <http://www.mediachannel.org/atissue/africanmedia/>

ANNOUNCEMENTS/REQUESTS Taken from PAMBAZUKA NEWS 48 MEDIA CHALLENGES IN AFRICA Why We Need MediaChannel: Africa.

In partnership with MediaChannel affiliates engaged with media issues in the region, we are proud to announce MediaChannel: Africa. This project will launch in early 2002 to provide media-makers with opportunities for collaboration, information sharing, global exposure and local and international support. It will be a vital resource for analyzing the impact of the media on Africa’s institutions and communities. We welcome your participation in this new project. Please join our discussions in the Forum.

Taken from Balancing Act’s News Update ISSUE 92
FREE SOFTWARE SITE FOR DEVELOPING COUNTRIES

8. <http://fsdev.org>

A web site promoting the use of free software in developing countries has recently been started: **FSDev.org** (<http://fsdev.org>) The site is aimed at serving as a forum for the exchange of ideas and information about the use of Free Software in developing countries. You can register for membership of the site to enable you to share information and news about using Free Software in developing countries. You are also welcome to suggest Web sites that should be included in the database of links about Free Software. (source: Katim Touray)

9. <http://www.uwex.edu/disted/overview.html>

The site provides definitions, and glossaries, which are particularly useful to those of you who are those new to distance education. Some of the items are included in the included in the course glossary list.

10. International Center for Distance Learning

<http://www-icdl.open.ac.uk/icdl/>

Based in the Institute of Educational Technology, The International Centre for Distance Learning (ICDL) performs research, teaching, consulting and provides information and publishing activities. Its distance education library and databases contain more than 15 years of knowledge worldwide regarding the field of distance education (31,000 distance learning programmes and courses, over 1,000 global institutions teaching at a distance, over 11,000 abstracts of books, journal articles, research reports, conference papers, dissertations and other types of literature).

11. Other Leading Journals in the Field of Distance Education.

1. Distance Education.

This is Australia's journal that is comparable to The American Journal of Distance Education.

2. Journal of Distance Education.

<http://www.hil.unb.ca/Texts/JDE/>

The Journal of Distance Education is an international publication of the Canadian Association for Distance Education (CADE). Its aim is to promote and encourage scholarly work of an empirical and theoretical nature that relates to distance education in Canada and throughout the world. Abstracts are fully searchable in both French and English. The articles can be ordered via the website.

3. Open Learning. (Dr. Michael Moore recommends.)

This is the United Kingdom's journal that is comparable to The American Journal of Distance Education.

12. <http://www.uwex.edu/disted/conference/general.htm>

This is a site with information from "Conference Proceedings".

Wisconsin Distance Teaching and Learning Conference. (Dr. Moore says this is the leading distance education conference in the Americas.)

The Annual Conference on Distance Teaching and Learning is recognized internationally for the quality and integrity of its program. Each year the conference provides a forum for the exchange of information on distance education and training. The conference addresses the needs of educators, trainers, managers and designers from throughout the world who are involved in the application of technology to the teaching and learning process and in the planning, administration and management of distance education programs. The conference emphasizes: 1) practical "how to" guidelines and techniques to enhance distance teaching, learning, and course design (for audio, video, print, computer and other media); 2) best practices that demonstrate effective management, instructor training, and learner support services; 3) successful solutions, innovations or research that address important problems or barriers with proven results; and 4) new developments and trends in distance education and global learning.

Note the conference proceedings are available for sale.

<http://www.uwex.edu/disted/conference/proceed.htm>

Distance Learning 2001
A Focus on Effective Management and Emerging Technologies

Distance Learning 2000
Human Factors in Distance Education

1999 Conference
Achieving Aims of Access and Quality

1998 Conference
Distance Education: A Total System

1997 Conference
Competition, Connection, Collaboration

1996 Conference
Designing for Active Learning

1995 Conference
Teaching Strategies for Distance Learning

1994 Conference
Designing Learner Centered Systems

1993 Conference
Teaming Up for Success

1992 Conference
From Vision to Reality: Providing Cost-Effective, Quality Distance Education

1991 Conference
Designing for Learner Access

1990 Conference
Challenges for New Learning Systems

1989 Conference
Helping Learners to Learn at a Distance

1988 Conference
Changing Roles in Education and Training

1987 Conference
Evaluation of Teaching/Learning at a Distance

1986 Conference
Improving Teaching at a Distance

1985 Conference
Effective Teaching at a Distance